User Manual

SAP Device Driver for SATO Printers

- Version 1.0.14

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Alternatively, you can consult your nearest authorized SATO technical representative, as listed on the back cover, to obtain the relevant information about SAP Device Printer Driver Software.

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Table of Contents

Table of Contents **4**

1 Introduction **5**

2 SAP Environment **6**

3 Overview of Solution **7**

4 Using SATO Device Type **8**

5 Creating Output Device **15**

6 Functionalities of SATO-SAP Printer Driver **17**

6.1 Barcode 17
6.1.1 Defining Barcode 18
6.1.2 New Barcode Technology 19
6.1.3 New Technology Barcode 22
6.1.4 Old Barcode Technology (Conventional System Barcode) 24
6.1.5 Old Technology Barcode 24
6.1.6 Defining Printer Barcodes 25
6.1.7 Customized Barcode with UNDEF 28
6.1.7.1 GS1-128 Barcode with UNDEF 28
6.1.7.2 GS1 Datamatrix Barcode with UNDEF 30
6.1.7.3 QR Barcode with UNDEF 34
6.2 Fonts 36
6.3 SmartStyles 38
6.4 Smart Forms 40
6.4.1 Adding Text 41
6.4.2 Adding Barcode 43
6.4.3 Adding Images 44
6.4.4 Positioning Printing Components 45
6.4.5 Printing the Smart Forms 45
6.5 System Commands 47
6.5.1 Text and Image Rotation 51
6.5.2 Setup Label Size Using Command 52

7 Limitations **53**

8 Appendix **54**

8.1 Print Controls List for Barcode 54
8.2 Font Print Controls 60

Introduction 1

"SAP Device Driver for SATO printers" is a SAP Smart Forms printing solution to SATO printer. It allows users to use a driver for a Page Description Language (PDL) that is implemented in ABAP and resided in the SAP environment to print SATO printer without 3rd party solutions. With this device driver, SATO BARCODE PRINTER LANGUAGE (SBPL) is sent to the SATO printer directly from SAP –- providing greater performance and efficiency.

This document explains the necessary environment and configuration to use such a solution.

SAP Environment 2

The following SAP environment supports the ABAP based PDL drivers:

- SAP_BASIS Release 6.20:
  Support Package SAPKB62064 + attached correction instructions or
  Support Package SAPKB62065 + attached correction instructions
  or Support Package SAPKB62066
  Kernel 6.40 patch level 222

- SAP_BASIS Release 6.40:
  Support Package SAPKB64022 + attached correction instruction
  or Support Package SAPKB64023
  Kernel 6.40 patch level 222

- SAP_BASIS Release 7.00:
  Support Package SAPKB70014 + attached correction instruction
  or Support Package SAPKB70016
  Kernel 7.00 patch level 148

- SAP_BASIS Release 7.01:
  supported from the beginning

- SAP_BASIS Release 7.10:
  not supported in 7.10

Please refer to the SAP Notes: 1097563 for the updated information about the overview of SAP PDL driver.

Overview of Solution

3

This solution is primarily for Smart Forms printing. It requires 2 components from the printer providers, such as SATO.

- ABAP Based PDL device driver
- Device Type files

After uploading the components into the SAP system, users will

- Use Smart Styles to define the available printing items in the device type,
- Use Smart Forms to design the label
- Define Output Device that points to the given Device Type
- Print the Smart Forms through the output device.

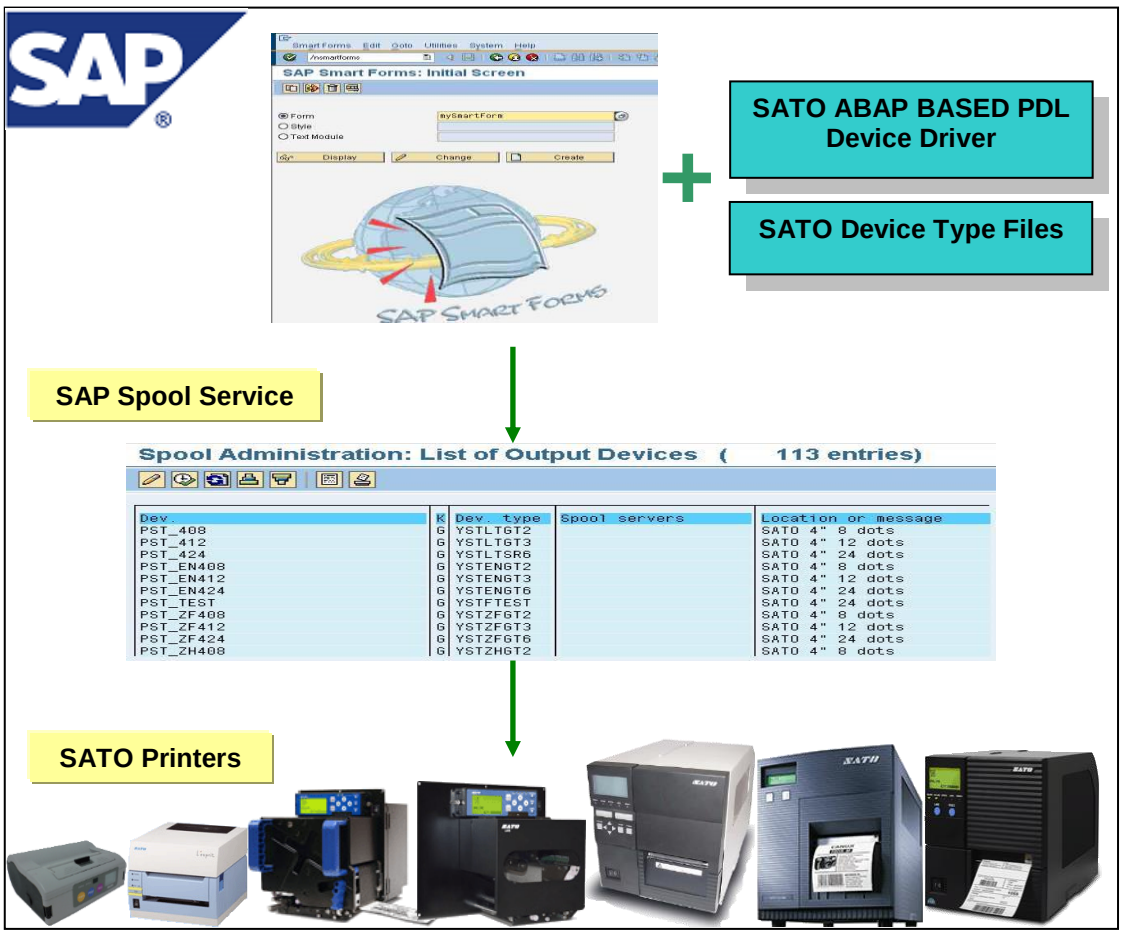

SAP Smart Forms: Initial Screen
SAP Smart Forms
SATO ABAP BASED PDL Device Driver
SATO Device Type Files
SAP Spool Service
Spool Administration: List of Output Devices (113 entries)
Dev. K Dev. type Spool servers Location or message
PST_408 G YSTLTGT2 SATO 4" 8 dots
PST_412 G YSTLTGT3 SATO 4" 12 dots
PST_424 G YSTLTSR6 SATO 4" 24 dots
PST_EN408 G YSTENGT2 SATO 4" 8 dots
PST_EN412 G YSTENGT3 SATO 4" 12 dots
PST_EN424 G YSTENGT6 SATO 4" 24 dots
PST_TEST G YSTFTEST SATO 4" 24 dots
PST_ZF408 G YSTZFGT2 SATO 4" 8 dots
PST_ZF412 G YSTZFGT3 SATO 4" 12 dots
PST_ZF424 G YSTZFGT6 SATO 4" 24 dots
PST_ZH408 G YSTZHGT2 SATO 4" 8 dots
SATO Printers

Figure 1 Overview of solution

Please refer to the SAP Notes: 1135106 for the updated information about the SATO PDL Driver.

Using SATO Device Type

4

The following device types for SATO PDL Driver are available:

Codepage	Name of Device Type	Resolution	Supported Models
Latin1 (ISO8859-1)	YSTLTGT2	203dpi	GT408e S8408 LT408 MB400i **S84-ex 203dpi **S86-ex 203dpi
	YSTLTGT3	305dpi	GT412e S8412 MB410i **S84-ex 305dpi **S86-ex 305dpi
	YSTLTGT6	609dpi	GT424e S8424 **S84-ex 609dpi
	YSTLTGL2	203dpi	GL408e
	YSTLTGL3	305dpi	GL412e
	YSTLTSR2	203dpi	*SR408 *PT408e *MR400e *SG408R *SG408R-ex *SG608R
	YSTLTSR3	305dpi	*SR412 *PT412e *MR410e *SG412R *SG412R-ex *SG612R *SG112T/R
	YSTLTSR6	609dpi	*SR424 *SG424R *SG424R-ex
	YSTLTHR6	609dpi	HR224
	YSTLTCN2	203dpi	**CL4NX 203dpi
	YSTLTCN3	305dpi	**CL4NX 305dpi
	YSTLTCN6	609dpi	**CL4NX 609dpi

Codepage	Name of Device Type	Resolution	Supported Models
English Only (7-Bit USA ASCII)	YSTENGT2	203dpi	GT408e S8408 **S84-ex 203dpi **S86-ex 203dpi LT408
	YSTENGT3	305dpi	GT412e S8412 **S84-ex 305dpi **S86-ex 305dpi
	YSTENGT6	609dpi	GT424e S8424 **S84-ex 609dpi
	YSTENGL2	203dpi	GL408e
	YSTENGL3	305dpi	GL412e
	YSTENSR2	203dpi	*SR408 *MR400e *SG408R *SG408R-ex *SG608R
English Only (7-Bit USA ASCII)	YSTENSR3	305dpi	*SR412 *MR410e *SG412R *SG412R-ex *SG612R *SG112T/R
	YSTENSR6	609dpi	*SR424 *SG424R *SG424R-ex
	YSTENHR6	609dpi	HR224
	YSTENCN2	203dpi	**CL4NX 203dpi
	YSTENCN3	305dpi	**CL4NX 305dpi
	YSTENCN6	609dpi	**CL4NX 609dpi
Europe Characters (Codepage 850)	YSTCPCL2	203dpi	CL408e, CL608e CT408i M-8459Se M-8485Se M-8460Se M84-Pro2 CG208, CG408 GZ408e **CL6NX 203dpi
	YSTCPCL3	305dpi	CL412e, CL612e CT412i M-8465Se M-8490Se M10e M84-Pro3 CG212, CG412 GZ412e **CL6NX 305dpi
	YSTCPCL6	609dpi	M84-Pro6
	YSTCPLM2	208dpi	LM408e
	YSTCPLM3	305dpi	LM412e

Codepage	Name of Device Type	Resolution	Supported Models
Korean (Wansung Encoding, HYRGothic-Medium)	YSTKOGT2	203dpi	GT408e
	YSTKOGT3	305dpi	GT412e
	YSTKOGT6	609dpi	GT424e
	YSTKOGL2	203dpi	GL408e
	YSTKOGL3	305dpi	GL412e
Korean Unicode (UTF-8)	YSTKUGL2	203dpi	GL408e
	YSTKUGL3	305dpi	GL412e
Traditional Chinese (Big5)	YSTZFGT2	203dpi	GT408e
	YSTZFGT3	305dpi	GT412e
	YSTZFGT6	609dpi	GT424e
	YSTZFGL2	203dpi	GL408e
	YSTZFGL3	305dpi	GL412e
Traditional Chinese Unicode (UTF-8)	YSTFUGL2	203dpi	GL408e
	YSTFUGL3	305dpi	GL412e
Simplified Chinese (GB2312)	YSTZHGT2	203dpi	GT408e
	YSTZHGT3	305dpi	GT412e
	YSTZHGT6	609dpi	GT424e
Simplified Chinese Unicode (UTF-8)	YSTHUGL2	203dpi	GL408e
	YSTHUGL3	305dpi	GL412e
Japanese (Shift-JIS) + English (7-Bit USA ASCII)	YSTJAPT2	203dpi	*PT408e
	YSTJAPT3	305dpi	*PT412e
	YSTJASR2	203dpi	*SR408 *SG408R *SG408R-ex *SG608R
	YSTJASR3	305dpi	*SR412 *SG412R *SG412R-ex *SG612R *SG112T/R
	YSTJASR6	609dpi	*SR424 *SG424R *SG424R-ex
	YSTJALP2	203dpi	*L'espritT/R408v *L'espritT/R408v-ex
	YSTJALP3	305dpi	*L'espritT/R412v *L'espritT/R412v-ex

Table 1 Device Types

Note: * denotes Japanese models

Note: ** denotes printer models which should have the LABEL_SIZE value described in a SmartForm when printing. For finding out more regarding filling out label's width and height please refer to the point *6.5.2* and the *Figure 56* of this documment. The label width value using YSTCPCL2 device type should be 1216 and the value needs to be 1824 when using YSTCPCL3 device type when printing using 6 inch label.

Printer Model	Supported Languages	Device Type
CL4NX	Latin1 (ISO8859-1)	YSTLTCNx
	English (ASCII characters)	YSTENCNx
CL6NX	European Characters (codepage 850)	YSTCPCLx
CL4xxe/CL6xxe	European Characters (codepage 850)	YSTCPCLx
GL4xxe	Latin1 (ISO8859-1)	YSTLTGLx
	English (ASCII characters)	YSTENGLx
	Korean (Wansung Encoding / Unicode)	YSTKOGLx / YSTKUGLx
	Simplified Chinese (Unicode)	YSTHUGLx
	Traditional Chinese (Big5 / Unicode)	YSTZFGLx / YSTFUGLx
GT4xxe	Latin1 (ISO8859-1)	YSTLTGTx
	English (ASCII characters)	YSTENGTx
	Korean (Wansung Encoding)	YSTKOGTx
	Simplified Chinese (GB2312)	YSTZHGTx
	Traditional Chinese (Big5)	YSTZFGTx
S84xx	Latin1 (ISO8859-1)	YSTLTGTx
	English (ASCII characters)	YSTENGTx
S84-ex	Latin1 (ISO8859-1)	YSTLTGTx
	English (ASCII characters)	YSTENGTx
S86-ex	Latin1 (ISO8859-1)	YSTLTGTx
	English (ASCII characters)	YSTENGTx
LT408	Latin1 (ISO8859-1)	YSTLTGTx
	English (ASCII characters)	YSTENGTx
MB4xxi	Latin1 (ISO8859-1)	YSTLTGTx
	English (ASCII characters)	YSTENGTx
M84xxSE	European Characters (codepage 850)	YSTCPCLx
M84-Pro	European Characters (codepage 850)	YSTCPCLx
M10e	European Characters (codepage 850)	YSTCPCLx
CT4xxi	European Characters (codepage 850)	YSTCPCLx
CG2xx/CG4xx	European Characters (codepage 850)	YSTCPCLx
LM4xxe	European Characters (codepage 850)	YSTCPLMx
GZ4xxe	European Characters (codepage 850)	YSTCPCLx
HR224	Latin1 (ISO8859-1)	YSTLTHR6
	English (ASCII characters)	YSTENHR6
* SR4xx	Latin1 (ISO8859-1)	YSTLTSRx
	English (ASCII characters)	YSTENSRx
	Japanese (Shift-JIS) + English (ASCII)	YSTJASRx
* SG4xxR	Latin1 (ISO8859-1)	YSTLTSRx
	English (ASCII characters)	YSTENSRx
	Japanese (Shift-JIS) + English (ASCII)	YSTJASRx
* SG4xxR-ex	Latin1 (ISO8859-1)	YSTLTSRx
	English (ASCII characters)	YSTENSRx
	Japanese (Shift-JIS) + English (ASCII)	YSTJASRx
* SG6xxR	Latin1 (ISO8859-1)	YSTLTSRx
	English (ASCII characters)	YSTENSRx
	Japanese (Shift-JIS) + English (ASCII)	YSTJASRx

Printer Model	Supported Languages	Device Type
* SG112T/R	Latin1 (ISO8859-1)	YSTLTSRx
	English (ASCII characters)	YSTENSRx
	Japanese (Shift-JIS) + English (ASCII)	YSTJASRx
Printer Model	Supported Languages	Device Type
* MR4xx	Latin1 (ISO8859-1)	YSTLTSRx
	English (ASCII characters)	YSTENSRx
* PT4xxe	Latin1 (ISO8859-1)	YSTLTSRx
	Japanese (Shift-JIS) + English (ASCII)	YSTJASRx
* L'espritT/R4xxv	Japanese (Shift-JIS) + English (ASCII)	YSTJALPx
* L'espritT/R4xxv-ex	Japanese (Shift-JIS) + English (ASCII)	YSTJALPx

Table 2 Supported Languages of Device Types

Note: * denotes Japanese models (YSTJAxxx version also support English ASCII font)

The following printer models support RFID Gen2 Barcode printing with SATO PDL Driver:

- CL4xxe
- CL6xxe
- GL4xxe
- GT4xxe / SR4xx
- M84xxSE
- S-84xx

* Ultra-High-Frequency (UHF) is used for the RFID encoding for the above printer models.

To print Asian languages from GT/SR or GL printer, language memory cartridge is needed:

Language Pack	Part Number
GT Korean Memory Cartridge	WWGT0590C
GT Simplified and Traditional Cartridge	WWGT0590K
GL Simplified Chinese Memory Cartridge	WWGL159BC
GL Traditional Chinese Memory Cartridge	WWGL159DC
GL Korean Memory Cartridge	WWGL159FK
SR Japanese Cartridge	WSR401910

Table 3 Memory Cartridge and Part No.

Note: Before uploading the device type files, the SATO Device Driver (PDL Driver) object has to be imported to the SAP System. The object file is to be imported using **STMS** (Transport Management System) Transaction.

The instruction of importing the PDL Device Driver can be found in the SAP Wizard Note: **Note 1103422 - SAP Printer Vendor program: Installing device types, etc.**

The SATO Device Type has to be uploaded into the SAP system by using the program '***RSTXSCRP'*** in the transaction code '***se38***'.

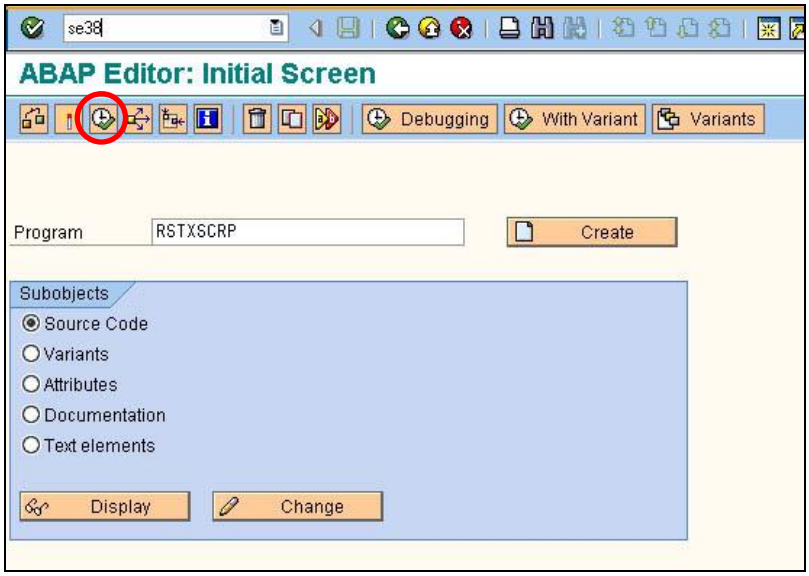


Figure 2 Uploading SATO Device Type

Click ‘F8’ to execute the command. The following screen will be displayed:

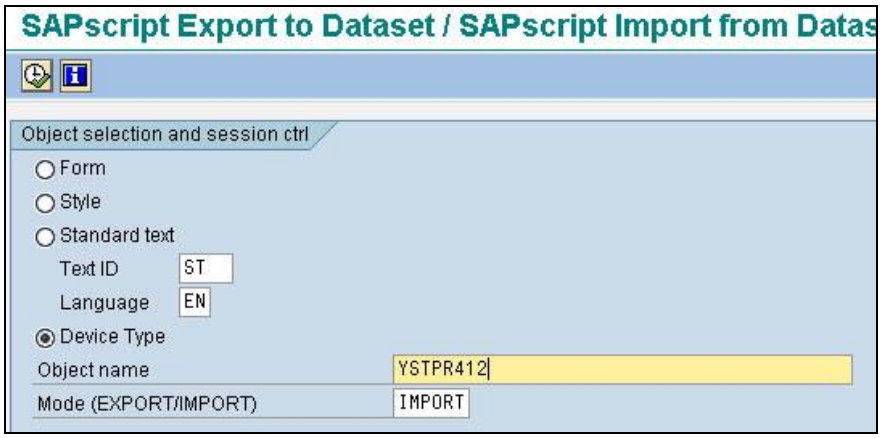


Figure 3 Importing Device Type file

Click on the radio button on ‘Device Type’. Change the Mode (EXPORT/IMPORT) to ‘IMPORT’. Then key in a name to represent the Device Type.

Note: The name must start with ‘YST’. It should contain 8 characters. The object name must match with the file name of the device type (without the extension).

Click the Execute button (F8) to continue.

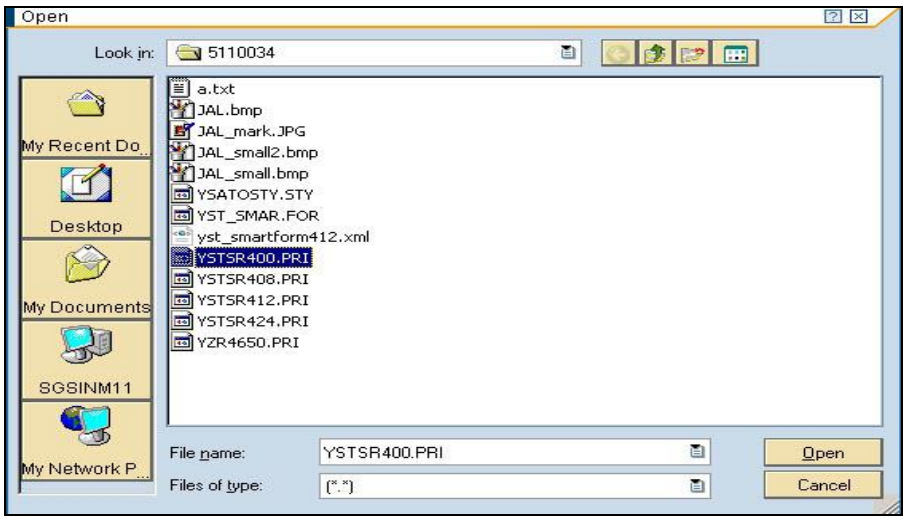


Figure 4 Selecting device type file

Creating Output Device

5

Enter '/nspad' transaction code to go to the Spool Administration application.

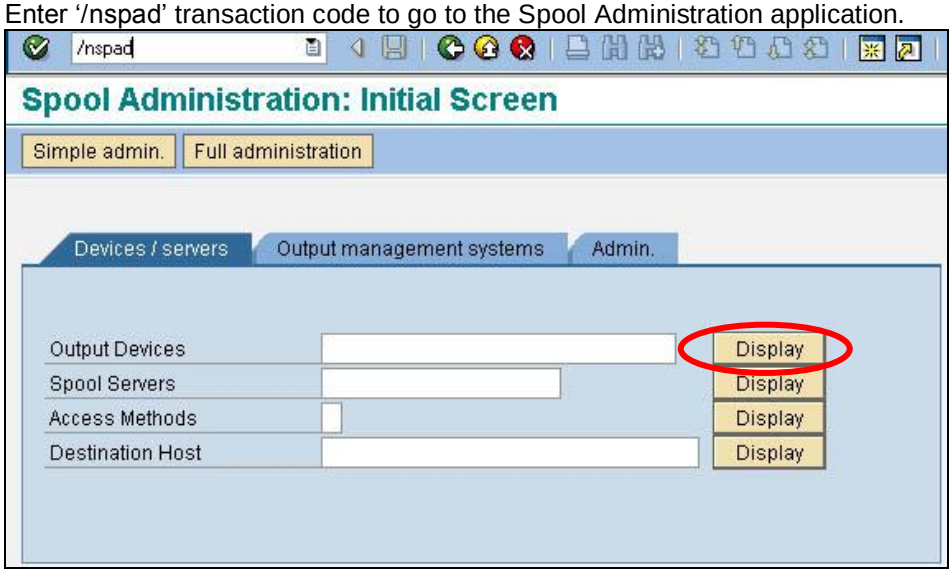


Figure 5 Creating Output Device

Under the Devices/Servers tab, click on "Display" button for 'Output Devices'.

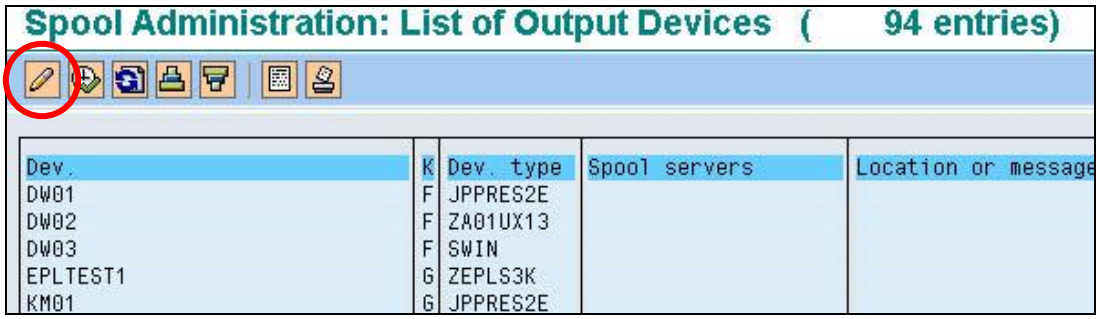


Figure 6 Click on the 'Edit' button to change the Edit mode

Figure 7 Edit Mode buttons

Click on the 'Create' button to create a new Output Device.

Figure 8 Defining Output Device

Enter a meaningful name in the textbox for Output Device. In the drop-down list of Device Type, select the Device Type you have previously uploaded into the SAP system.

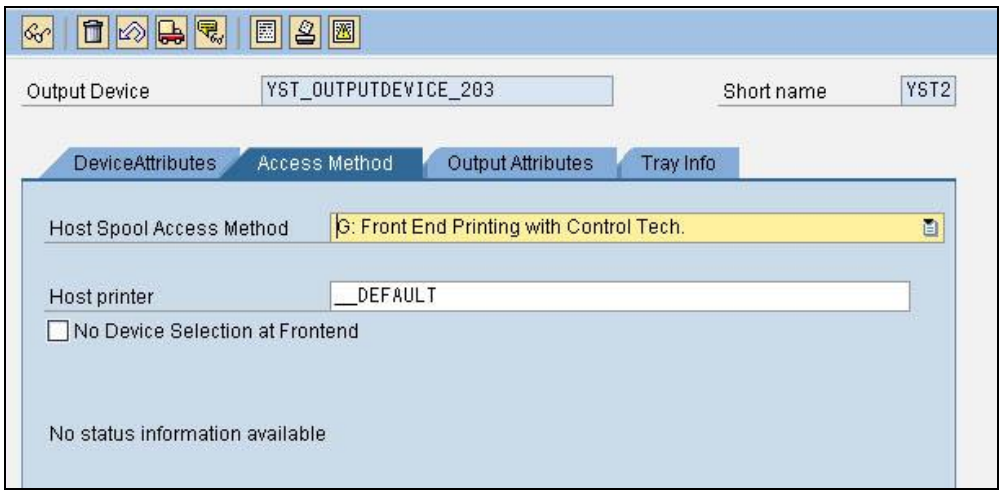


Figure 9 Defining Printing Method

Under the ‘Access Method’, define your Host Spool Access Method. In the above example, method “G: Front End Printing with Control Tech’ will prompt user to select a list of installed printer driver under the ‘Printer and Faxes’ in your Windows platform.

Note: Method G is used here just for the simplicity during testing.

Save the setting once the necessary information has been entered.

Functionalities of SATO-SAP Printer Driver 6

'SAP ABAP-Based Printer Driver for SATO printers' provides the following printing features:

6.1 Barcode

Both SAP traditional and new barcode symbology are supported. (Please refer to SAP notes: 430887 and 645158 for more information about the barcode symbology).

For New Barcode Technology (NBT), user only needs to define the barcode in SE73 transaction as System Barcode. The NBT supports the following barcodes:

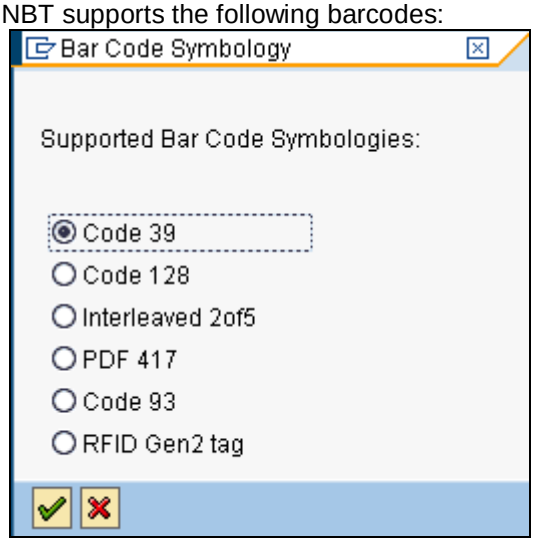


Figure 10 Barcodes in New Barcode Technology

For Traditional (old) Barcode, user needs to create the required barcode definition as System Barcode in SE73. Then link the barcode definition to the print control as Printer Barcode. The following shows the provided Print Control in SATO Device Types:

Barcode Type	SAP Print Control	SBPL command
Postnet	SBP07	ESC+BP
UUC/EAN128	XB012	ESC+BI
NW-7 (Codabar, Ratio 1:3)	XB101-XB112	ESC+B0<module width>
Interleaved 2 of 5 (Ratio 1:3)	XB121-XB132	ESC+B2<module width>
JAN/EAN13 (Ratio 1:3)	XB141-XB152	ESC+B3<module width>
JAN/EAN8 (Ratio 1:3)	XB161-XB172	ESC+B4<module width>
UPC-A (Ratio 1:3)	XB181-XB192	ESC+BH<module width>
NW-7 (Codabar, Ratio 1:2)	XB201-XB212	ESC+D0<module width>
Interleaved 2 of 5 (Ratio 1:2)	XB221-XB232	ESC+D2<module width>
JAN/EAN13 (Ratio 1:2)	XB241-XB252	ESC+D3<module width>
JAN/EAN8 (Ratio 1:2)	XB261-XB272	ESC+D4<module width>
UPC-A (Ratio 1:2)	XB281-XB292	ESC+DH<module width>
NW-7 (Codabar, Ratio 2:5)	XB301-XB312	ESC+BD0<module width>

Interleave 2 of 5 (Ratio 2:5)	XB321-XB332	ESC+BD2<module width>
JAN/EAN13 (Ratio 2:5)	XB341-XB352	ESC+BD3<module width>
JAN/EAN8 (Ratio 2:5)	XB361-XB372	ESC+BD4<module width>
UPC-A (Ratio 2:5)	XB381-XB392	ESC+BDH<module width>
Code 39 (Ratio 1:3)	XB501-XB512	ESC+B1<module width>
Code 39 (Ratio 1:2)	XB521-XB532	ESC+D1<module width>
Code 39 (Ratio 2:5)	XB541-XB552	ESC+BD1<module width>
Code 93	XB561-XB572	ESC+BC<module width>

Table 4 Barcode Print Controls

- Note: **The SATO PDL Driver supports Barcode Code 128 Type-A, Type-B, Type-C and Auto-Switch**. Please refer t o SAP Note: 645158 for the approach to use this barcode.

6.1.1 Defining Barcode

Before a Barcode can be used in the Smart Forms, the definition of the Barcode must be made.

SE73 – SAPScript Font Maintenance
Enter Transaction code ***SE73*** to enter to the following screen.

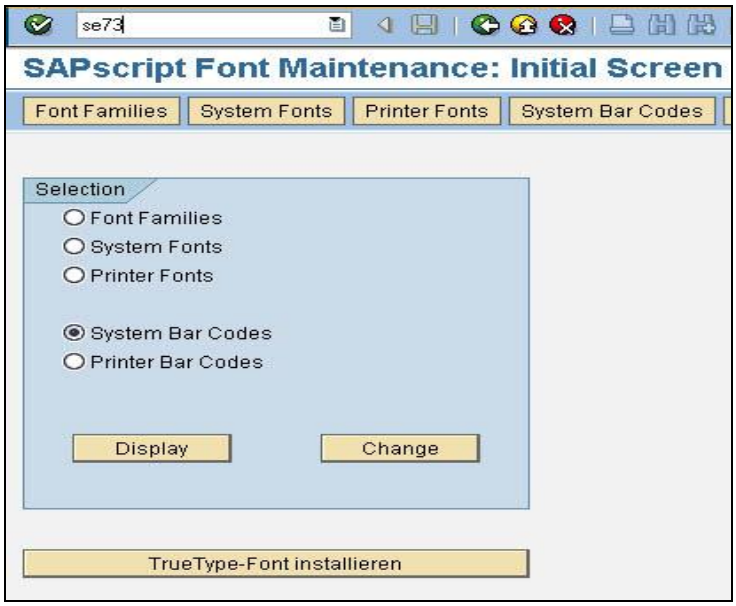
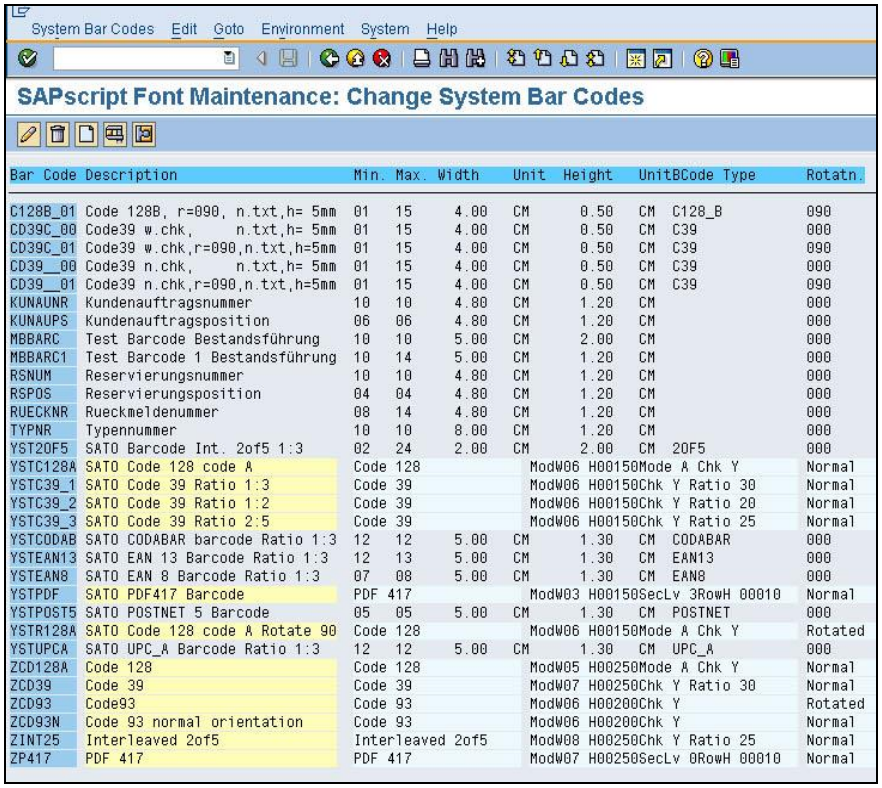


Figure 11 Transaction Code 73 – SAPScript Font Maintenance

Choose the ‘System Bar Codes’ and then click the ‘Change’ button to go the following screen.



Bar Code	Description	Min.	Max.	Width	Unit	Height	Unit	BCode Type	Rotatn.
C128B_01	Code 128B, r=090, n.txt,h= 5mm	01	15	4.00	CM	0.50	CM	C128_B	090
CD39C_00	Code39 w.chk, n.txt,h= 5mm	01	15	4.00	CM	0.50	CM	C39	000
CD39C_01	Code39 w.chk,r=090,n.txt,h=5mm	01	15	4.00	CM	0.50	CM	C39	090
CD39__00	Code39 n.chk, n.txt,h= 5mm	01	15	4.00	CM	0.50	CM	C39	000
CD39__01	Code39 n.chk,r=090,n.txt,h=5mm	01	15	4.00	CM	0.50	CM	C39	090
KUNAUNR	Kundenauftragsnummer	10	10	4.80	CM	1.20	CM		000
KUNAUPS	Kundenauftragsposition	06	06	4.80	CM	1.20	CM		000
MBBARC	Test Barcode Bestandsführung	10	10	5.00	CM	2.00	CM		000
MBBARC1	Test Barcode 1 Bestandsführung	10	14	5.00	CM	1.20	CM		000
RSNUM	Reservierungsnummer	10	10	4.80	CM	1.20	CM		000
RSPOS	Reservierungsposition	04	04	4.80	CM	1.20	CM		000
RUECKNR	Rueckmeldenummer	08	14	4.80	CM	1.20	CM		000
TYPNR	Typennummer	10	10	8.00	CM	1.20	CM		000
YST2OF5	SATO Barcode Int. 2of5 1:3	02	24	2.00	CM	2.00	CM	2OF5	000
YSTC128A	SATO Code 128 code A	Code 128				ModW06 H00150	Mode A Chk Y		Normal
YSTC39_1	SATO Code 39 Ratio 1:3	Code 39				ModW06 H00150	Chk Y Ratio 30		Normal
YSTC39_2	SATO Code 39 Ratio 1:2	Code 39				ModW06 H00150	Chk Y Ratio 20		Normal
YSTC39_3	SATO Code 39 Ratio 2:5	Code 39				ModW06 H00150	Chk Y Ratio 25		Normal
YSTCODAB	SATO CODABAR barcode Ratio 1:3	12	12	5.00	CM	1.30	CM	CODABAR	000
YSTEAN13	SATO EAN 13 Barcode Ratio 1:3	12	13	5.00	CM	1.30	CM	EAN13	000
YSTEAN8	SATO EAN 8 Barcode Ratio 1:3	07	08	5.00	CM	1.30	CM	EAN8	000
YSTPDF	SATO PDF417 Barcode	PDF 417				ModW03 H00150	SecLv 3RowH 00010		Normal
YSTPOST5	SATO POSTNET 5 Barcode	05	05	5.00	CM	1.30	CM	POSTNET	000
YSTR128A	SATO Code 128 code A Rotate 90	Code 128				ModW06 H00150	Mode A Chk Y		Rotated
YSTUPCA	SATO UPC_A Barcode Ratio 1:3	12	12	5.00	CM	1.30	CM	UPC_A	000
ZCD128A	Code 128	Code 128				ModW05 H00250	Mode A Chk Y		Normal
ZCD39	Code 39	Code 39				ModW07 H00250	Chk Y Ratio 30		Normal
ZCD93	Code93	Code 93				ModW06 H00200	Chk Y		Rotated
ZCD93N	Code 93 normal orientation	Code 93				ModW06 H00200	Chk Y		Normal
ZINT25	Interleaved 2of5	Interleaved 2of5				ModW08 H00250	Chk Y Ratio 25		Normal
ZP417	PDF 417	PDF 417				ModW07 H00250	SecLv 0RowH 00010		Normal

Figure 12 System Barcode screen

Click the ‘Create’ button or press ‘F5’ key to create a new System Barcode definition.

Figure 13 Create Button

6.1.2 New Barcode Technology

The following describes how to create a barcode with new Barcode Technology.

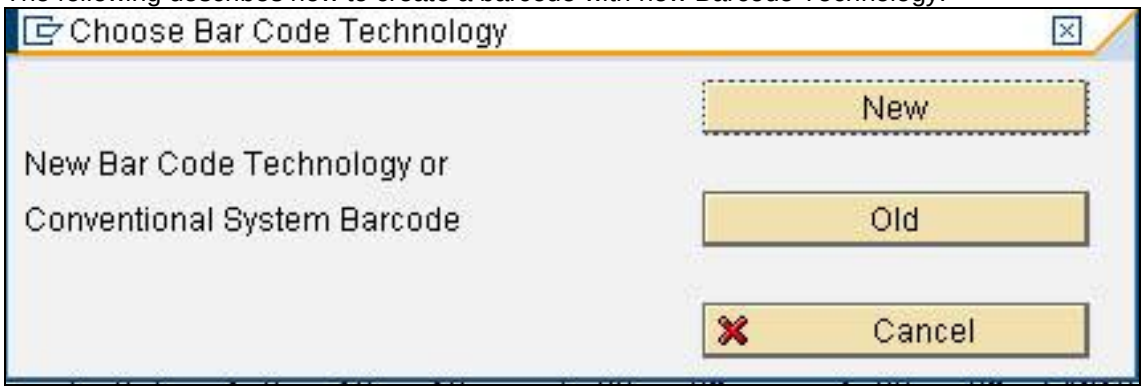


Figure 14 Choosing Barcode Technology

The ‘New Barcode Technology’ supports the following barcodes:

- Code39
- PDF417
- Code93
- 2 of 5 Interleaved
- Code128

Click on the ‘New’ button to enter the following screen.

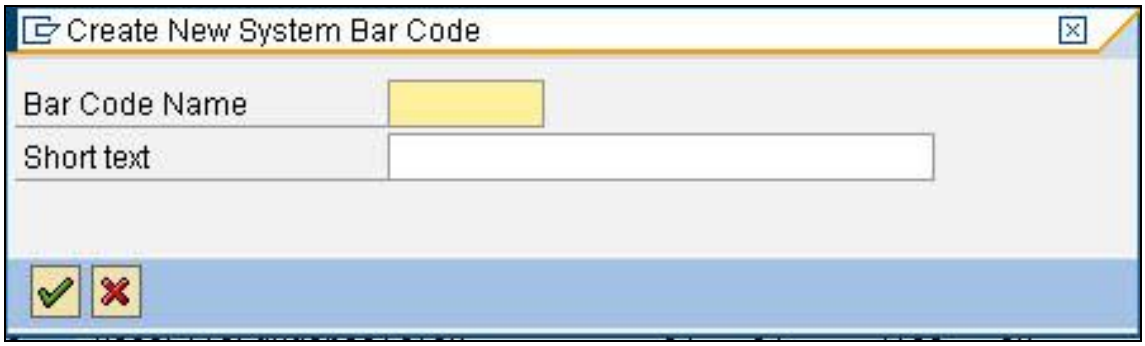


Figure 15 Entering Barcode information

For SATO barcode, it is recommended to define a Barcode name with prefix ‘YST’. For example, to define a new Code39 barcode, the following Barcode name can be used:

YSTCd39

Enter some description on the textbox for ‘Short text’. Press the tick button to continue.

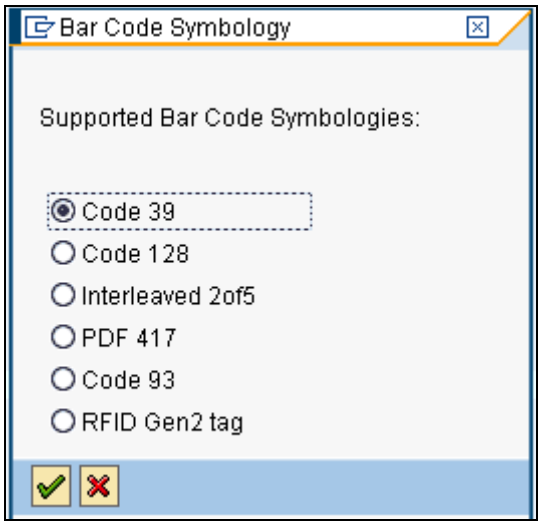


Figure 16 Selecting the Barcode Type

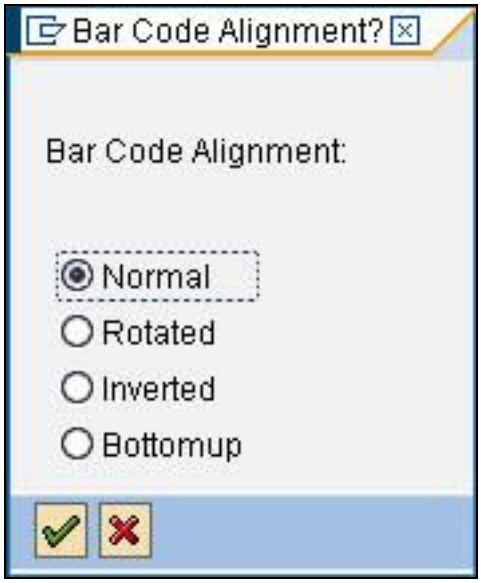


Figure 17 Choosing the Barcode alignment

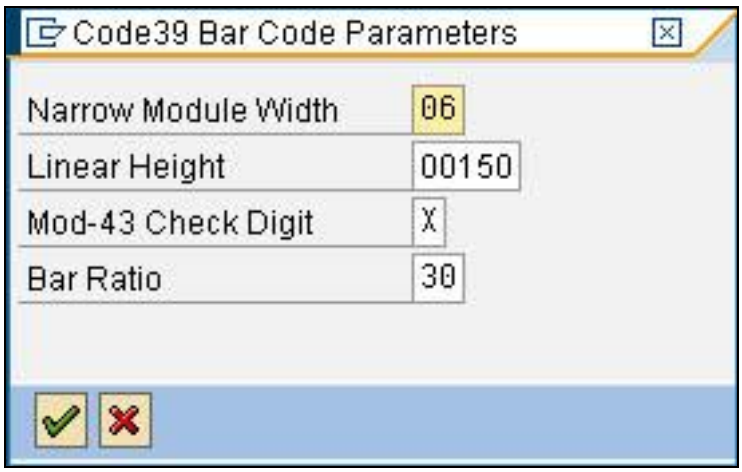


Figure 18 Entering Barcode Information

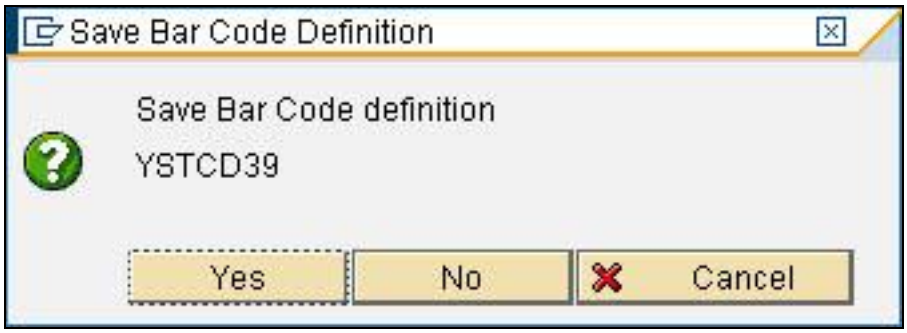


Figure 19 Saving the Barcode definition

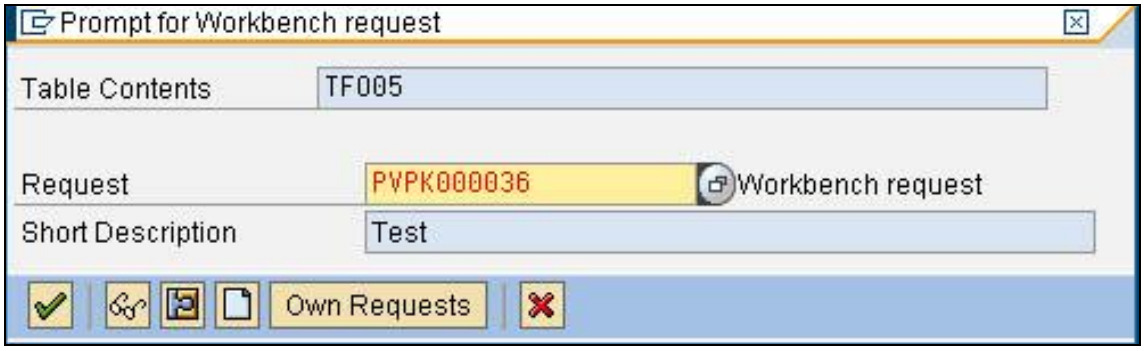


Figure 20 Saving the definition to workspace

That is all for the System Barcode definition. The next step will be defining the Printer Barcode in order to link the System Barcode to the Printer Control in the device type.

6.1.3 New Technology Barcode

For more information about the SATO Barcode printing command, please refer to the printer command specifications.

Code 39

This barcode is to start and end with '*' characters. If the given data is not started and ended with the '*' character, then the SATO-SAP printer driver will add the characters to the data automatically.

The printer will generate a 'beep' sound if invalid data is given.

Code 93

The maximum number of data for this barcode is 99. The printer, not the printer driver, will generate a check digit when the data is printed on the printer.

Code 128

For example, if the data '123456' was given, the following SBPL command will be generated by the printer driver: … ***BG03158>H123456.***

Please refer to SAP Note: 645158 for input approach for the Barcode Code 128. If unexpected values were received by the SATO PDL Driver, the barcode might not be printed.

Interleaved 2 of 5

The given data of this barcode must be even number. If odd number data is given, SATO-SAP printer driver will generate a '0' in front of the given data.
For example,
If '12345' was given, the barcode with value '012345' will be printed.

PDF 417

Minimum module width can be set to 01 and 02; however, this may not be read properly.
Note: For rotated PDF417 Barcode, the printed location on the label might differ from what shown on the print preview. User might want to adjust the position in the Smart Forms to get the required positioning.

RFID Gen2 Tag

User is to enter the necessary data based on the following descriptions:

RFID Attribute:	Representation in barcode field data:
EPC value	EPC:xxxxxxxxxxxxxxxxxxxxxxxx; (xxxxxxxxxxxxxxxxxxxxxxxx is 24 digit hex value representing 12 bytes)
PC value	PC:xxxxxxxxxxxxxxxxxxxxxxxx; (xxxxxxxxxxxxxxxxxxxxxxxx is 24 digit hex value representing 12 bytes) **(SATO Device Driver does not support this feature)**
USR value	USR:xxxxxxxxxxxxxxxxxxxxxxxx; (xxxxxxxxxxxxxxxxxxxxxxxx is 24 digit hex value representing 12 bytes)
ACS passcode	ACS:yyyyyyyy; (yyyyyyyy is 8 digit hex value representing 4 bytes)
LOCKMASK	LM:yy; yy is 2 digit hex value representing 1 byte: 0x01 – Lock EPC+PC 0x02 – Perma-lock EPC+PC 0x04 – Lock USR 0x08 – Perma-lock USR **(only Lock EPC and Lock USR are supported by SATO Device Driver)**
KILL passcode	KILL:yyyyyyyy; (yyyyyyyy is 8 digit hex value representing 4 bytes)

Table 5 RFID Attributes

Examples:

Barcode data field contents:	Meaning:
EPC:F2A07895C1710708090A0B0C;	Numerical (hexadecimal) data for EPC
USR:F2A07895C171010203040506;EPC:019975F3ABB0010203040506;	Numerical data for USR and EPC banks
EPC:11223344556601020304050 6;ACS:1224489F;LM:01;	Numerical data for EPC bank, ACS passcode for LOCK operation is 1224489F, Memory banks EPC+PC are locked
EPC:112233445566070809 0A0B0C;USR:01112248D8F060708090A0B0C;ACS:1234567A;LM:0A;	Numerical data for EPC and USR banks, ACS passcode for PERMALOCK operation is 1234567A, Memory banks EPC+PC and USR are perma-locked
EPC:123456789ABC0708090A0B0C;KILL:1234567F;	Numerical data for EPC, KILL passcode is 1234567F

Table 6 RFID input examples

6.1.4 Old Barcode Technology (Conventional System Barcode)

Click the 'Old' button (as in Figure 14 Choosing Barcode Technology to define a Barcode with Old Barcode Technology.

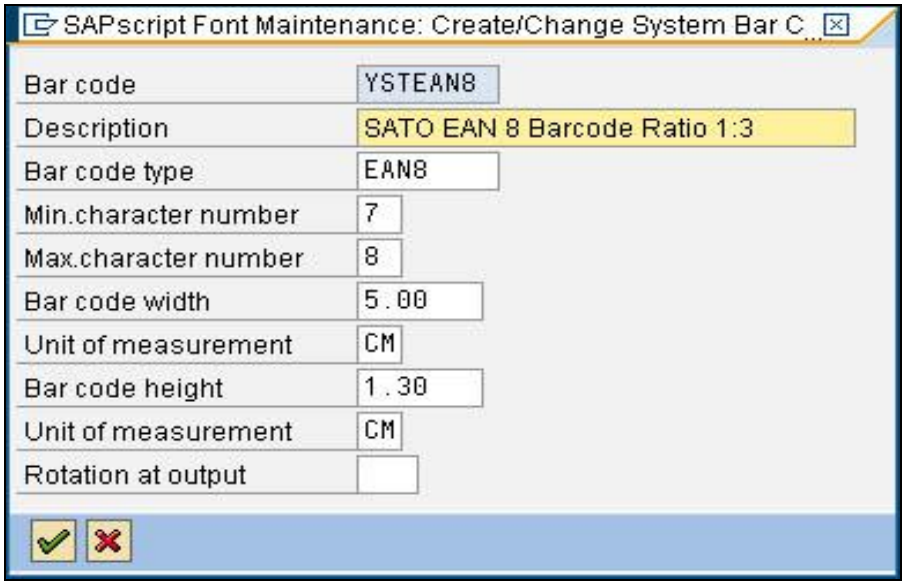


Figure 21 Defining Barcode with Old Barcode Technology

* In Old Barcode Technology, there is no way to define the Barcode Module Width. Thus, print controls with such information have been defined. User is to select the print control which carries required Barcode Module Width.

6.1.5 Old Technology Barcode

Interleaved 2 of 5

The given data of this barcode must be even number. If odd number data is given, SATO-SAP printer driver will generate a '0' in front of the given data.
For example,
If '12345' was given, the barcode with value '012345' will be printed.

CODABAR

The barcode includes start and stop characters: A,B,C,D,E,N,T,a,b,c,d,e,n,t. If the given data is not started and ended with the start/stop characters, then the SATO-SAP printer driver will embedded the data with Start/Stop character 'A'.

POSTNET

The SATO-SAP printer driver supports the US Postal Service POSTNET barcode with the following formats:
- 5 digits (Postnet-32 format)
- 6 digits (Postnet-37 format)
- 9 digits (Postnet-52 format)
- 11 digits (Postnet-62 Delivery Point format)

If data with other formats than above was given, the SATO printer will generate a 'beep' sound to indicate invalid data.

UPC Barcode Type A
The data of this barcode should be 11 digits + 1 check digit. If user supplies 12 digits data, then SATO-SAP printer driver will assume the last digit is the given check digit. Else, the driver will generate the check digit.

EAN 8 Barcode
The data of this barcode should be 7 digits + 1 check digit. If user supplies 8 digits data, then SATO-SAP printer driver will assume the last digit is the given check digit. Else, the driver will generate the check digit based on Modulo 10 formula.

EAN 13 Barcode
The data of this barcode should be 12 digits + 1 check digit. If user supplies 13 digits data, then SATO-SAP printer driver will assume the last digit is the given check digit. Else, the driver will generate the check digit based on Modulo 10 formula.

Code 39
Code39 is an alphanumeric code that can represent the following characters in the bar code data:
Numbers: 1234567890
Capital letters: ABCDEFGHIJKLMNOPQRSTUVWXYZ
Special characters: - . $ / + %
Blank characters (space characters)

The start and stop character for the Code39 bar code is represented by an asterisk (*) in the text view of the bar code data (also called "human-readable text" or "interpretation line").

If the given data is enclosed in asterisk (*), no check digit will be generated by the driver.

Code 93
Code93 is an alphanumeric code that can represent the following characters directly in the bar code data:
Numbers: 1234567890
Capital letters: ABCDEFGHIJKLMNOPQRSTUVWXYZ
Special characters: - . $ / + %
Blank characters (space characters)

6.1.6 Defining Printer Barcodes
Once the System Barcode (Old Technology) has been defined, then proceed to define the printer barcode. **Note: This step is not required for barcode defined with New Barcode Technology.**

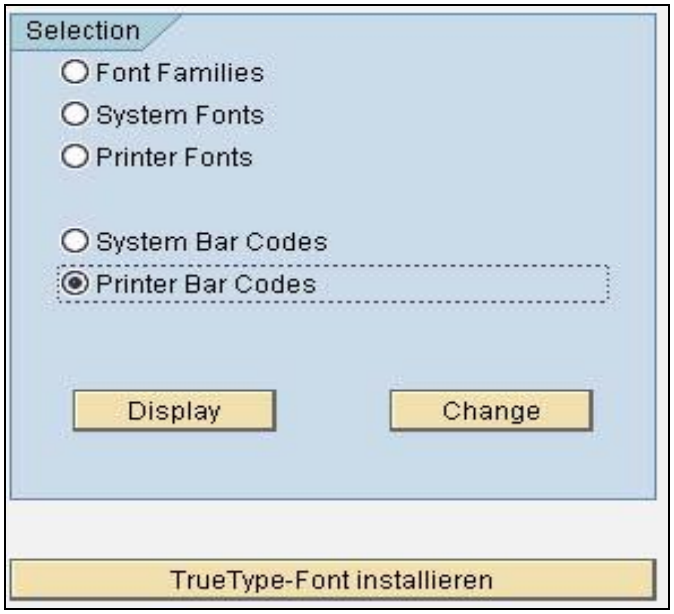


Figure 22 Printer Barcode Definition

Choose the ‘Printer Barcodes’ and then click the ‘Change’ button to create a Printer Barcode definition.

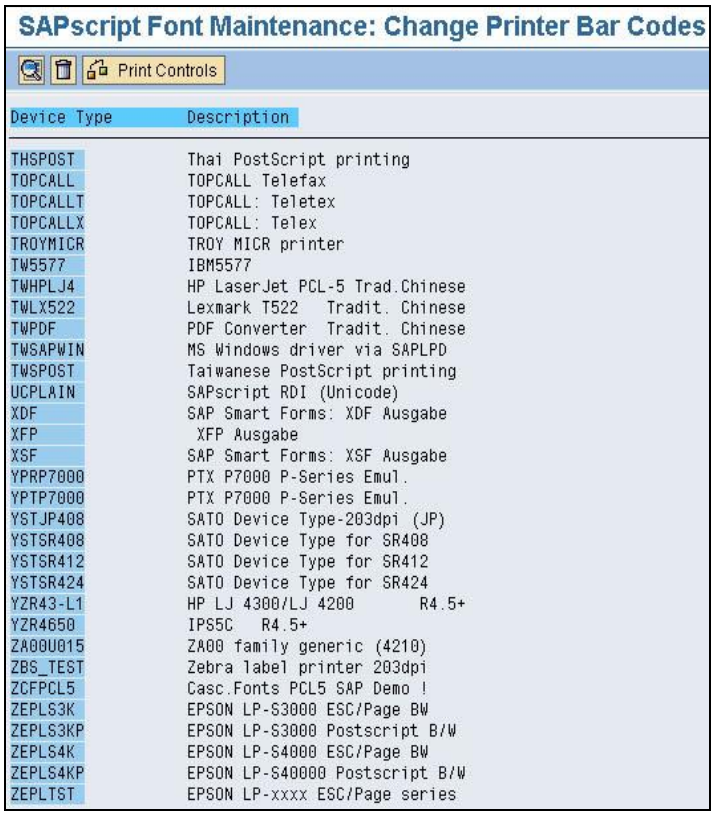

SAPscript Font Maintenance: Change Printer Bar Codes
Print Controls
Device Type Description
THSPOST Thai PostScript printing
TOPCALL TOPCALL Telefax
TOPCALLT TOPCALL: Teletex
TOPCALLX TOPCALL: Telex
TROYMICR TROY MICR printer
TW5577 IBM5577
TWHPLJ4 HP LaserJet PCL-5 Trad.Chinese
TWLX522 Lexmark T522 Tradit. Chinese
TWPDF PDF Converter Tradit. Chinese
TWSAPWIN MS Windows driver via SAPLPD
TWSPOST Taiwanese PostScript printing
UCPLAIN SAPscript RDI (Unicode)
XDF SAP Smart Forms: XDF Ausgabe
XFP XFP Ausgabe
XSF SAP Smart Forms: XSF Ausgabe
YPRP7000 PTX P7000 P-Series Emul.
YPTP7000 PTX P7000 P-Series Emul.
YSTJP408 SATO Device Type-203dpi (JP)
YSTSR408 SATO Device Type for SR408
YSTSR412 SATO Device Type for SR412
YSTSR424 SATO Device Type for SR424
YZR43-L1 HP LJ 4300/LJ 4200 R4.5+
YZR4650 IPS5C R4.5+
ZA00U015 ZA00 family generic (4210)
ZBS_TEST Zebra label printer 203dpi
ZCFPCL5 Casc.Fonts PCL5 SAP Demo !
ZEPLS3K EPSON LP-S3000 ESC/Page BW
ZEPLS3KP EPSON LP-S3000 Postscript B/W
ZEPLS4K EPSON LP-S4000 ESC/Page BW
ZEPLS4KP EPSON LP-S40000 Postscript B/W
ZEPLTST EPSON LP-xxxx ESC/Page series

Figure 23 Device List for Printer Barcodes

Double click the SATO device type which starts with prefix ‘YST’.

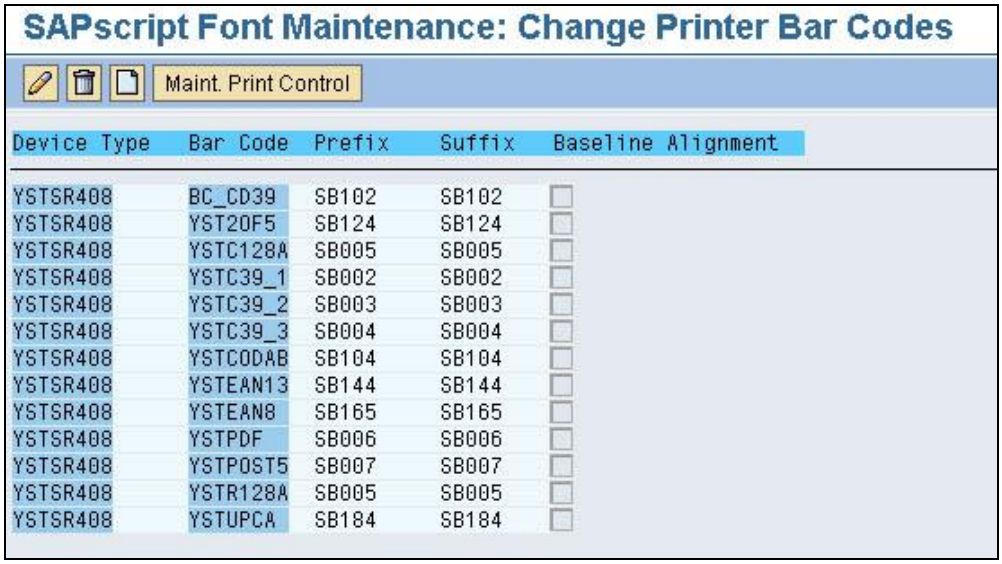

SAPscript Font Maintenance: Change Printer Bar Codes
Maint. Print Control
Device Type Bar Code Prefix Suffix Baseline Alignment
YSTSR408 BC_CD39 SB102 SB102
YSTSR408 YST2OF5 SB124 SB124
YSTSR408 YSTC128A SB005 SB005
YSTSR408 YSTC39_1 SB002 SB002
YSTSR408 YSTC39_2 SB003 SB003
YSTSR408 YSTC39_3 SB004 SB004
YSTSR408 YSTCODAB SB104 SB104
YSTSR408 YSTEAN13 SB144 SB144
YSTSR408 YSTEAN8 SB165 SB165
YSTSR408 YSTPDF SB006 SB006
YSTSR408 YSTPOST5 SB007 SB007
YSTSR408 YSTR128A SB005 SB005
YSTSR408 YSTUPCA SB184 SB184

Figure 24 Printer Barcode List in the device type

Click on the ‘Create’ button or ‘F5’ key to create a new definition of Printer Barcode.

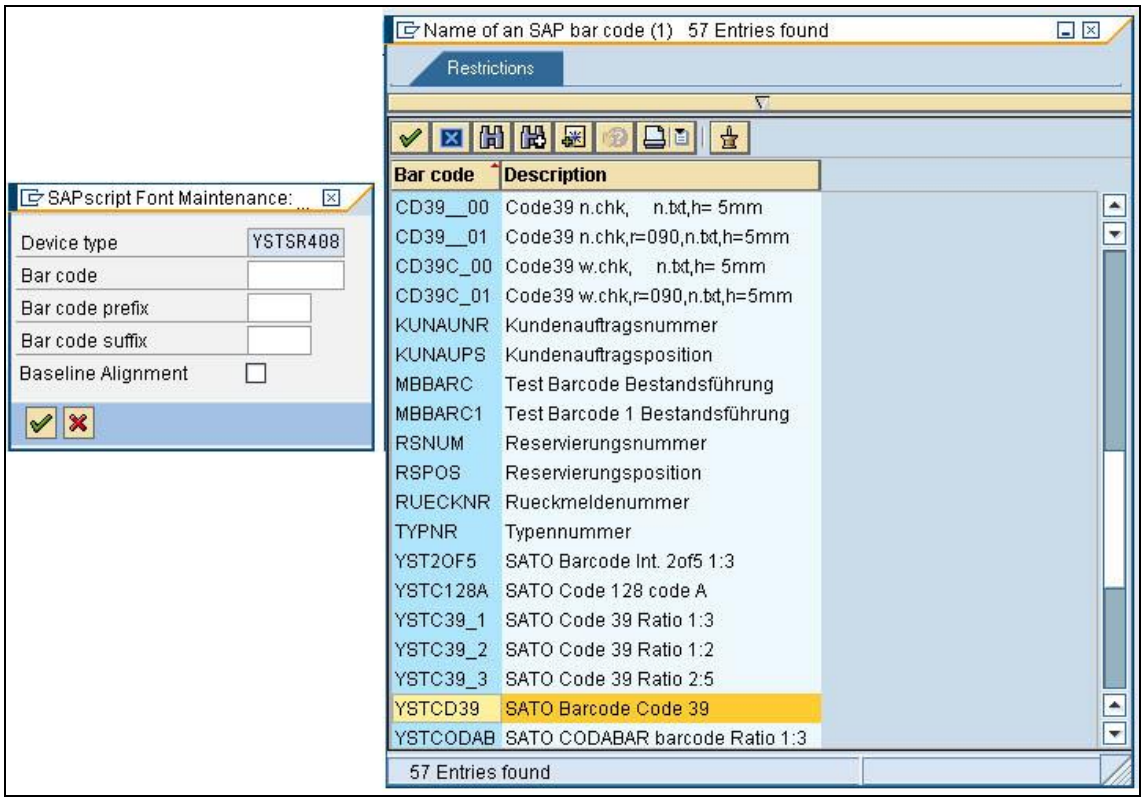


Figure 25 Defining Printer Barcode

Select the System Barcode which has been defined previously from the entry list. Then key in the required Print Control. Note: Key in the same print control for both ‘Bar code prefix’ and ‘Bar code suffix’.

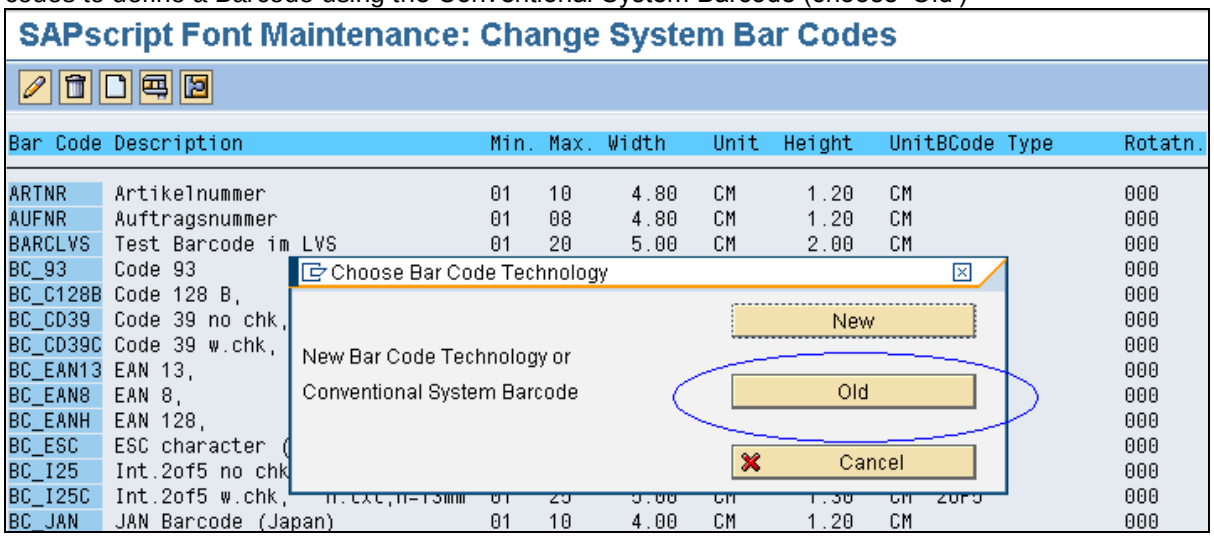
Refer to Table 4 Barcode Print Controls for the available print control definition in the device type.

6.1.7 Customized Barcode with UNDEF

Note that this task should only be performed by advanced users. Please contact Sato technical team at global.sysdev-gbs@sato-global.com should you have any queries.

If the printer-resident (such as GS1-128) is not supported in SAP, customized print control can be added into the device type and "UNDEF" barcode type can be used to map to the print control.

UNDEF is only in Old Barcode Technology. To start with UNDEF, go to SE73->System Bar codes to define a Barcode using the Conventional System Barcode (choose 'Old')



6.1.7.1 GS1-128 Barcode with UNDEF

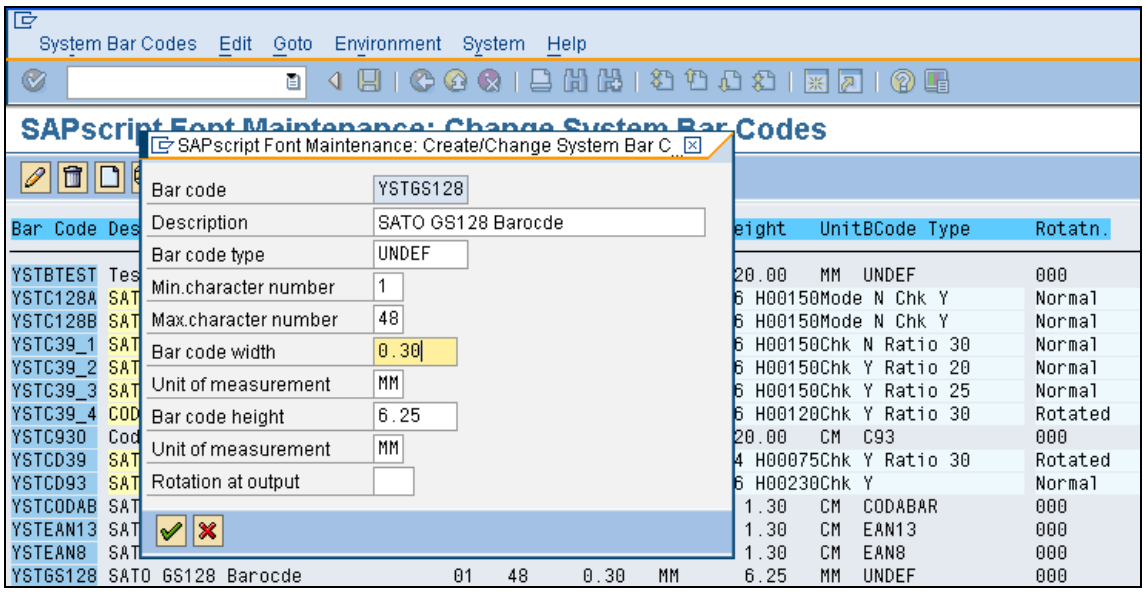

System Bar Codes Edit Goto Environment System Help
SAPscript Font Maintenance: Create/Change System Bar C
Bar code YSTGS128
Description SATO GS128 Barocde
Bar code type UNDEF
Min.character number 1
Max.character number 48
Bar code width 0.30
Unit of measurement MM
Bar code height 6.25
Unit of measurement MM
Rotation at output

Figure 26 Customized Barcode Definition

i. Create Customized Barcode Definition
Go to SE73->System Bar Codes to create a GS1-128 Barcode definition (Figure 26 Customized Barcode Definition). Use "UNDEF" as the Bar code type. Note that the "Bar code width" of the above definition will not be used.

ii. Create Print Control in device type

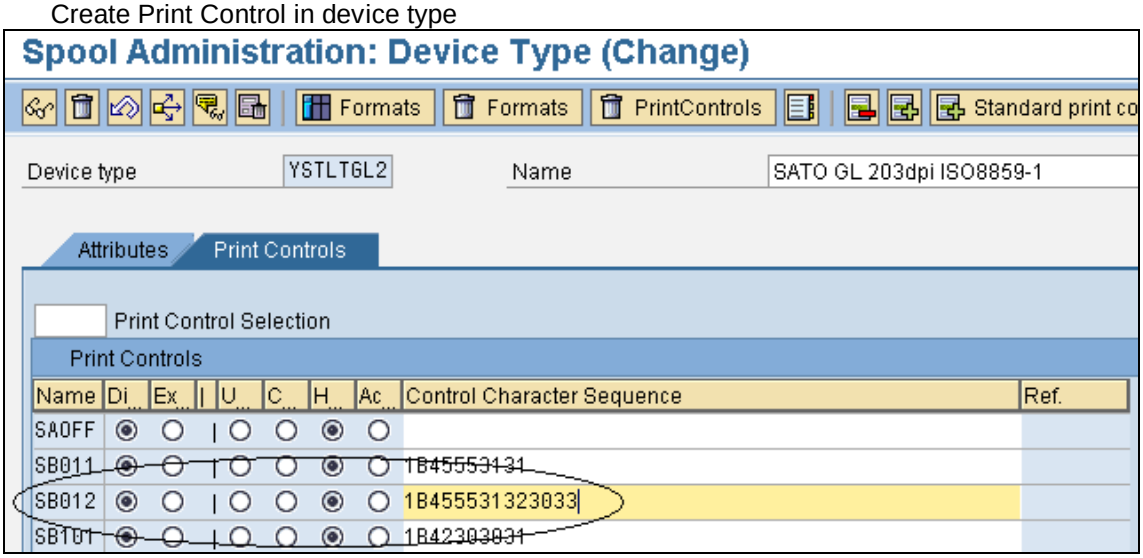


Figure 27 Defining Print Control in Device type

Use SPAD->Full Administration->Device Types to open the Print Controls tab of the device type. Add a new barcode print control (Prefix SB) and input the hex value of Control Character Sequence. In this example, the hex value of "<Esc>EU1203" is entered for Print Control SB012.

This print control defines Sato Barcode commands for GS1-128 (UCC/EAN128) with CC-C with Narrow Barcode with = 3 dots. The Barcode Height will be extracted from the Barcode Definition (Figure 26 Customized Barcode Definition). The Barcode Data will be supplied from SmartForms or SAP Database.

iii. Mapping of Barcode Definition to Print Control

Go to SE73->Printer Bar Codes

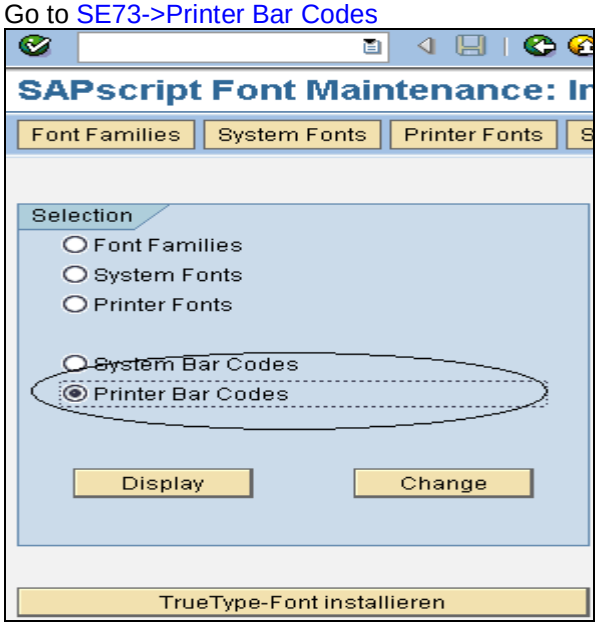


Figure 28 Mapping of Print Control

Click on the Device Type to add the barcode mapping to Print Control.

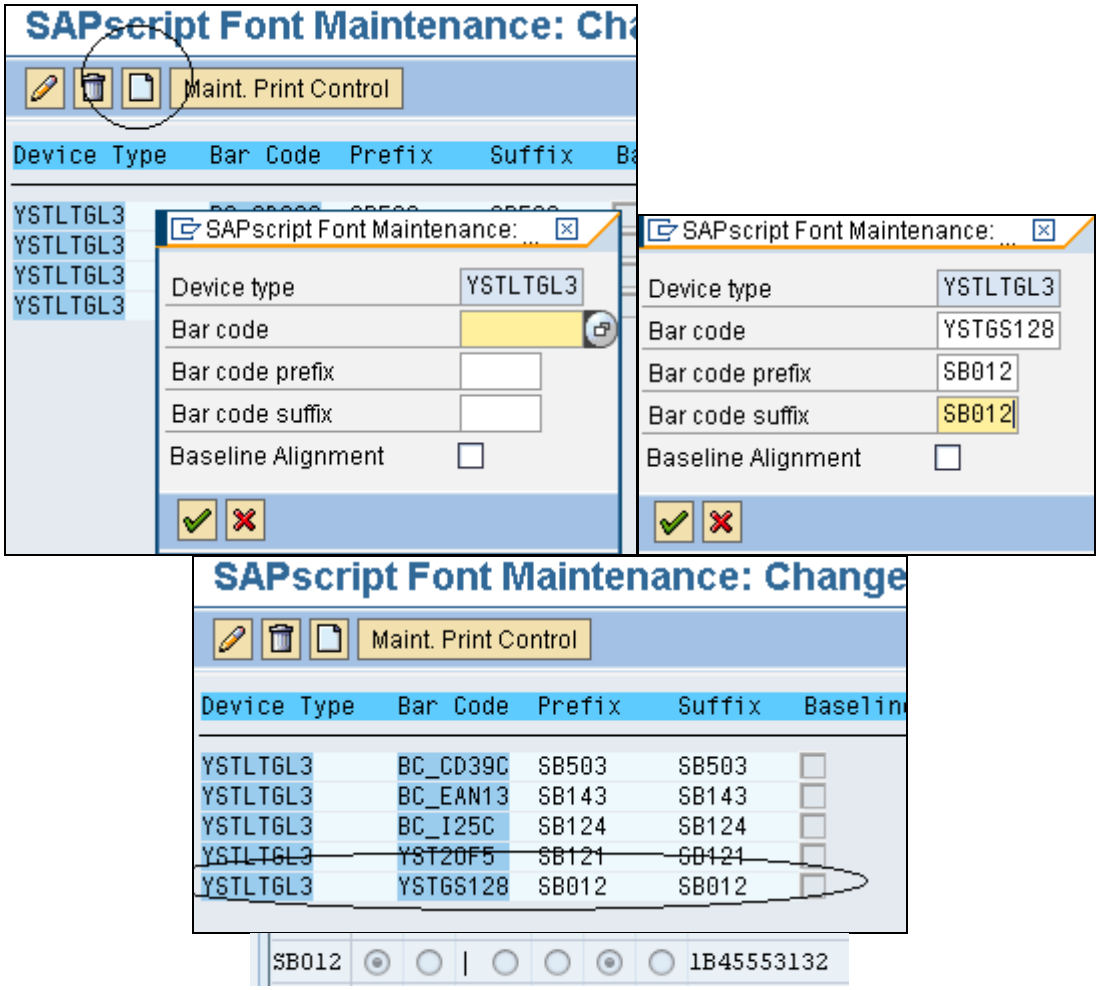


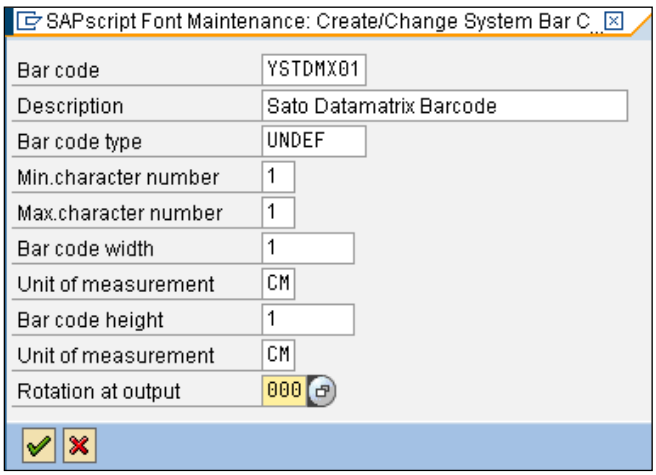
Figure 29 Mapping of Print Control

6.1.7.2 GS1 Datamatrix Barcode with UNDEF

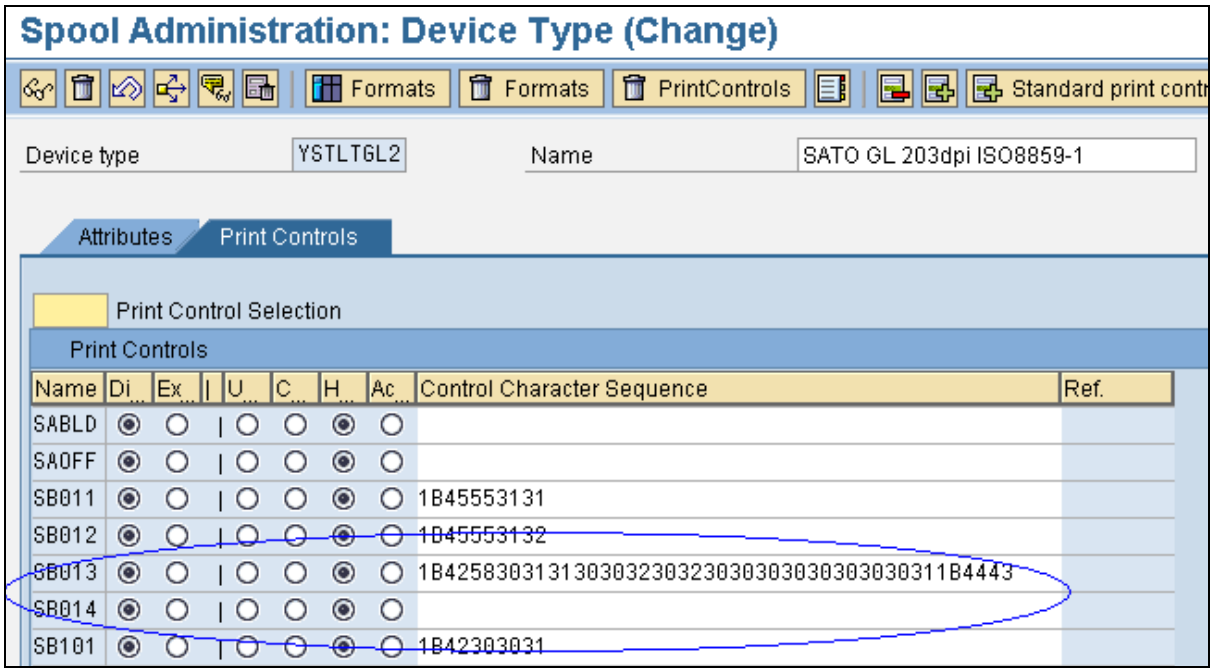
6.1.7.2.1 **Create a new Barcode Definition.**

Note:

1. The name of the Barcode must start with "**YSTDMX**". This is how the Sato Device Driver identifies this as the Barcode Definition for Datamatrix.
2. The Barcode Type must be **UNDEF**.
3. The rest of the parameters (except Rotation) will not be used by Sato Device Driver for the Datamatrix barcode. Those parameters has to be defined inside the Print Control as below.


SAPscript Font Maintenance: Create/Change System Bar C
Bar code YSTDMX01
Description Sato Datamatrix Barcode
Bar code type UNDEF
Min.character number 1
Max.character number 1
Bar code width 1
Unit of measurement CM
Bar code height 1
Unit of measurement CM
Rotation at output 000

6.1.7.2.2 **Define the Print Control information in the device type**



SB013 defines the prefix which carries the following Sato Print Commands:

Font ID: 01

Error correction level: 20 (ECC200)

Cell width: 02

Cell pitch: 02

No. of cells per line: 000

No. of cell lines: 000

Mirror image: Normal (Standard print)

＜ESC> B X 0 1 **2 0** 0 2 0 2 0 0 0 0 0 0 0 1

＜ESC> D C

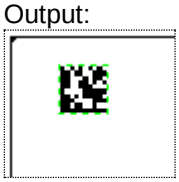
The height and the width of the barcode are controlled by the cell width and pitch:

Example 1)

Cell width: 05, Cell pitch 05

<Esc> B X 0 1 **2 0** 0 5 0 **5** 0 0 0 0 0 0 0 1

Output:



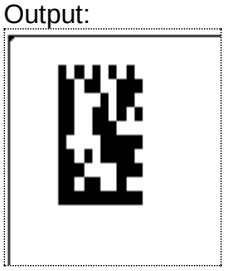
Example 2)

Cell width: 09, Cell pitch 09

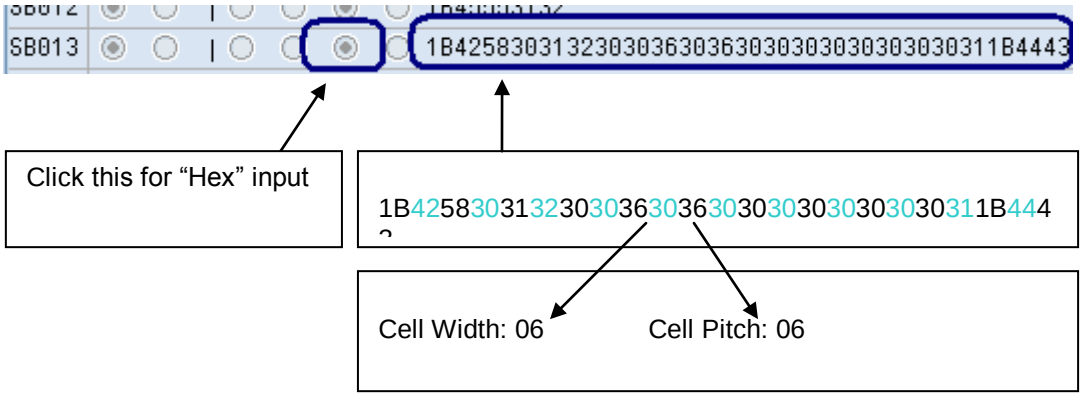
<Esc> B X 0 1 **2 0** 0 9 0 **9** 0 0 0 0 0 0 0 1

Output:

Example 3)
Cell width: 09, Cell pitch 15
<Esc> B X 0 1 **2 0** 0 915 0 0 0 0 0 0 0 0 1
Output:

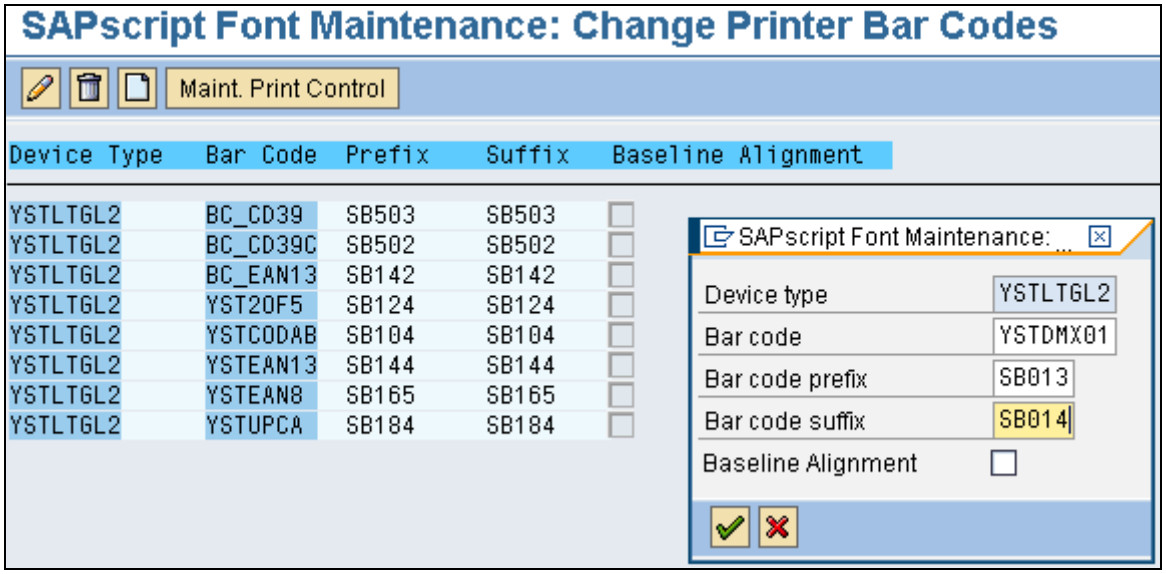


The data of the Barcode will be appended to the Prefix print control (in this case, SB013).
If there is any special code (such as FNC1 code), you can append it here (as hex value).
SB014 defines the suffix. If there is no data for the Suffix, you can leave the print control empty.



6.1.7.2.3 **Mapping the Barcode Definition to Print Control**

Go to SE73->Printer Bar codes. Create the mapping in the device type.


SAPscript Font Maintenance: Change Printer Bar Codes
Maint. Print Control
Device Type Bar Code Prefix Suffix Baseline Alignment
YSTLTGL2 BC_CD39 SB503 SB503
YSTLTGL2 BC_CD39C SB502 SB502
YSTLTGL2 BC_EAN13 SB142 SB142
YSTLTGL2 YST2OF5 SB124 SB124
YSTLTGL2 YSTCODAB SB104 SB104
YSTLTGL2 YSTEAN13 SB144 SB144
YSTLTGL2 YSTEAN8 SB165 SB165
YSTLTGL2 YSTUPCA SB184 SB184
SAPscript Font Maintenance:
Device type YSTLTGL2
Bar code YSTDMX01
Bar code prefix SB013
Bar code suffix SB014
Baseline Alignment

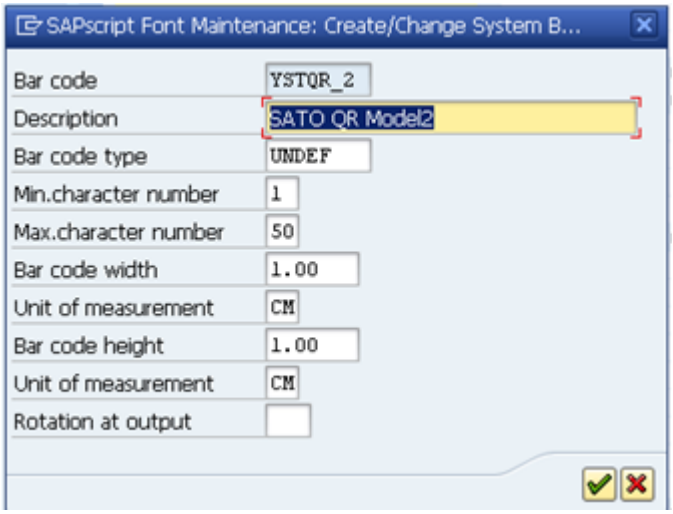
Select the Barcode Definition created previously, and map it to the print controls.

6.1.7.3 QR Barcode with UNDEF

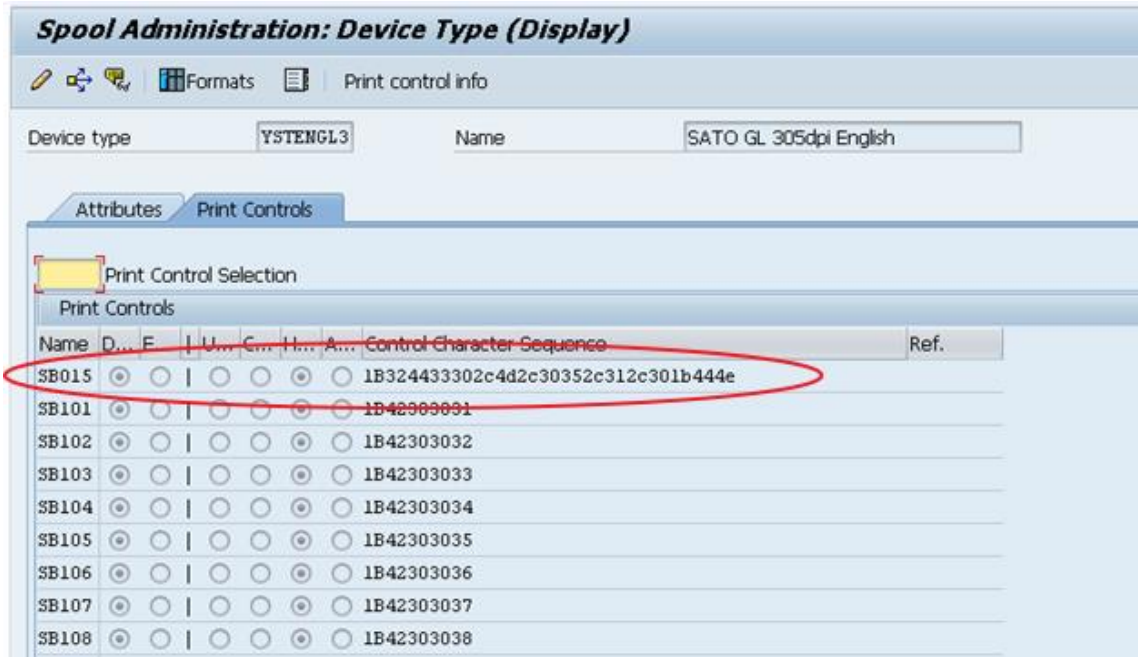
6.1.7.3.1 Create a new Barcode Definition.

Note:

4. The name of the Barcode must start with "**YSTQR_**". This is how the Sato Device Driver identifies this as the Barcode Definition for QR Code.
5. The Barcode Type must be **UNDEF**.
6. The rest of the parameters (except Rotation) will not be used by Sato Device Driver for the QR barcode. Those parameters has to be defined inside the Print Control as below.



6.1.7.3.2 Define the Print Control information in the device type



SB015 defines the prefix which carries the following Sato Print Commands:

Entered commad in

Hex: 1B324433302c4d2c30352c312c301b444e

ASCII: 2D30,M,05,1,0 DN

Command Format: <2D30>,a,bb,c,d

SBPL Command: <ESC>2D30

Parameters:

- **a** Error Correction = L: 7%, M: 15%, Q: 25%, H: 30%
- **b** Cell Size= 01 to 32 dots
- **c** Data Setting Mode = 0: Manual, 1: Auto
- **d** Concentration Mode = 0: Normal, 1 Concentration Mode (using 1 required more parameters)

For Data Part

Command Format : <DN>mmmm,n~n

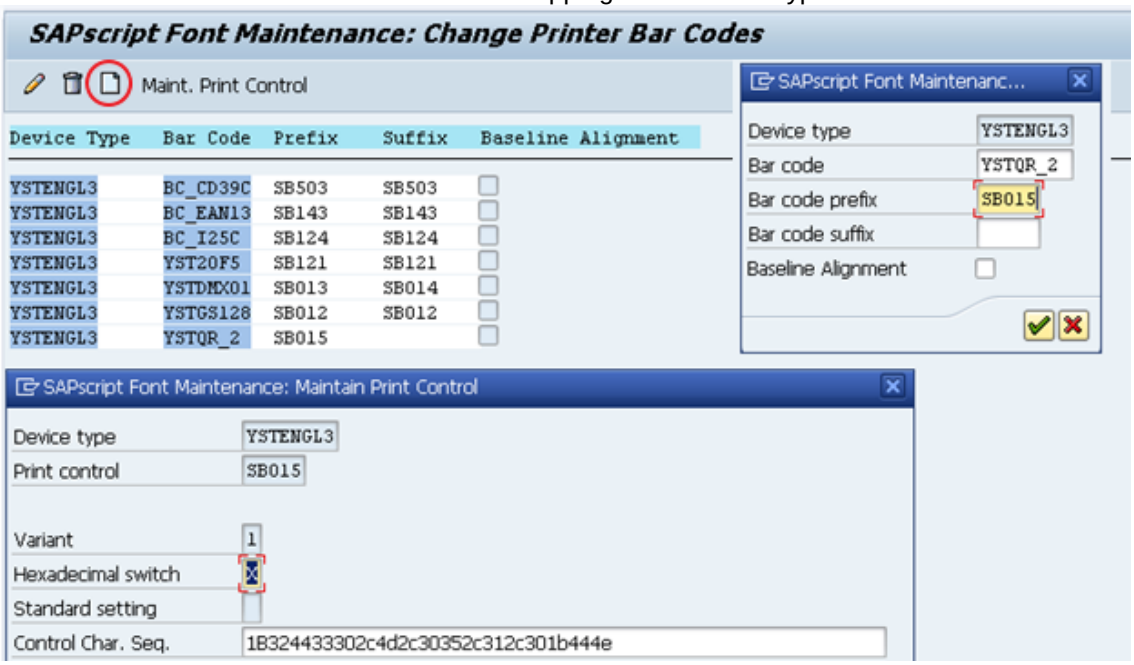
SBPL Command : <ESC>DN

Parameters:

- **m** No of data = 1 to 2953
- **n** data = Print Data

6.1.7.3.3 Mapping the Barcode Definition to Print Control

Go to SE73->Printer Bar codes. Create the mapping in the device type.



Select the Barcode Definition created previously, and map it to the print controls.

6.2 Fonts

SATO-SAP Printer Driver supports the following fonts:

Latin 1 (ISO8859-1 codepage) device types:

SAP Font	SATO Font	Type	SBPL Command
HELVETICA	CG Triumvirate	Scalable	ESC+RDB
TIMES	CG Times	Scalable	ESC+RDA

English only device types:

SAP Font	SATO Font	Type	SBPL Command
HELVETICA	CG Triumvirate	Scalable	ESC+RDB
TIMES	CG Times	Scalable	ESC+RDA
COURIER BOLD (optional Italic)	Helvetica Outline Font, fixed character pitch	Scalable	ESC+$B, ESC+$=
LETGOTH	SATO Fixed Size M Font	Bitmap, fixed size	ESC+M
LNPRINT	SATO Fixed Size S Font	Bitmap, fixed size	ESC+S

Codepage 850 device types :

SAP Font	SATO Font	Type	SBPL Command
HELVETICA	CG Triumvirate	Scalable	ESC+RDB
TIMES	CG Times	Scalable	ESC+RDA
COURIER BOLD (optional Italic)	Helvetica Outline Font, fixed character pitch	Scalable	ESC+$B, ESC+$=

Codepage 850 for LM4xxe device types :

SAP Font	SATO Font	Type	SBPL Command
HELVETICA (optional Italic)	Helvetica Outline Font, proportional character pitch	Scalable	ESC+$A, ESC+$-
COURIER BOLD (optional Italic)	Helvetica Outline Font, fixed character pitch	Scalable	ESC+$B, ESC+$=
LETGOTH	SATO Fixed Size XM Font	Bitmap, fixed size	ESC+XM
LNPRINT	SATO Fixed Size XS Font	Bitmap, fixed size	ESC+XS
COUR_I7	SATO Fixed Size XU Font	Bitmap, fixed size	ESC+XU

Korean (Wangsung Encoding/Unicode) device types:

SAP Font	SATO Font	Type	SBPL Command
KPBATANG Proportional	HYRGothic-Medium	Scalable	ESC+RDK

Simplified Chinese (GB2312/Unicode) device types:

SAP Font	SATO Font	Type	SBPL Command
CNSONG Proportional	MKaiSO-Medium-U	Scalable	ESC+RDC

Traditional Chinese (Big 5/Unicode) device types:

SAP Font	SATO Font	Type	SBPL Command
TWSONG Proportional	MHeiS-Bold -U	Scalable	ESC+RDc

Japanese (Shift-JIS) + English ASCII device types:

SAP Font	SATO Font	Type	SBPL Command
DBGothic, DBMincho, JPMincho	SATO Japanese resident bitmap font	Bitmap, fixed size	ESC+K
HELVETICA ^	CG Triumvirate	Scalable	ESC+RDB
TIMES ^	CG Times	Scalable	ESC+RDA
COURIER BOLD * (optional Italic)	Helvetica Outline Font, fixed character pitch	Scalable	ESC+$B, ESC+$=

Note: * YSTJAPTx not supported, ^ YSTJALPx not supported

Table 7 Supported font in SATO-SAP Printer Driver

For Fixed size SATO Resident Font, please refer to the Font Appendix for a list of supported size of the font.

Note:

1. SATO 203dpi printer does not support printing of 8 point or lower Courier Font (ESC+$A, ESC+$B, ESC+$=). It will be printed in a slightly larger size instead.

2. There could be some discrepancies of the string length shown on SmartForms and what printed from printer. This is because when converting the SAP font point size into SATO font dot size for specific resolution, there is a rounding up of fractions in the calculation.

3. For Japanese device types which offer SATO Resident Bitmap fonts, the Japanese text will appear shorter than what shown on the print preview of SmartForms. This is because the width of the 1-byte characters in the SAP Japanese fonts is 0.5 time of the 2-byte characters. But in SATO Japanese fonts, the width of the 1-byte characters is slightly larger, about 0.6 times, of the 2-byte characters.

6.3 SmartStyles

Enter Transaction code ‘smartstyles’ to use the Smart Styles application.

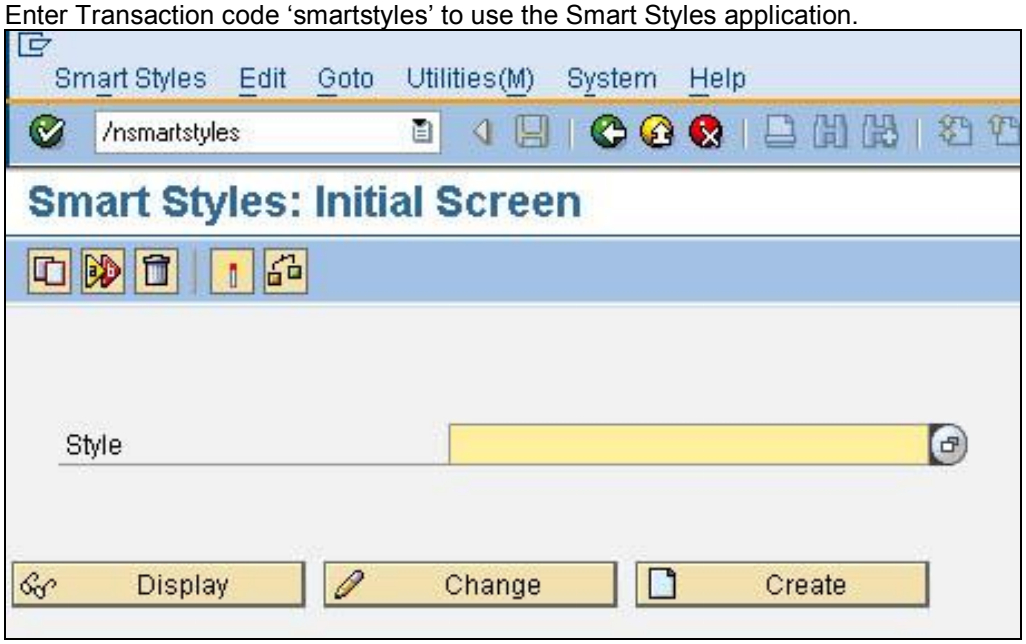


Figure 30 SmartStyles

Create or edit a SmartStyles to define the printing items which are to be used in the Smart Forms.

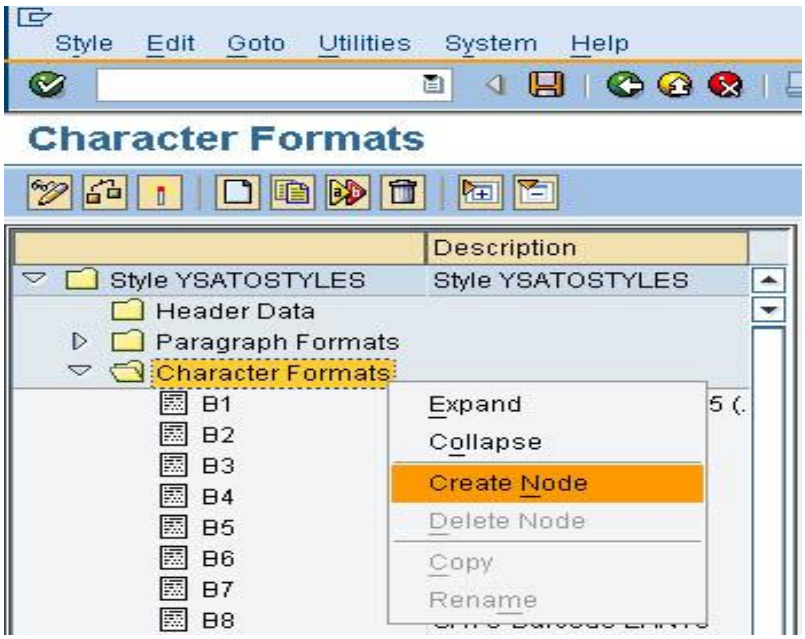


Figure 31 Create node of printing items

Right click on the ‘Character Formats’ and choose ‘Create Node’.

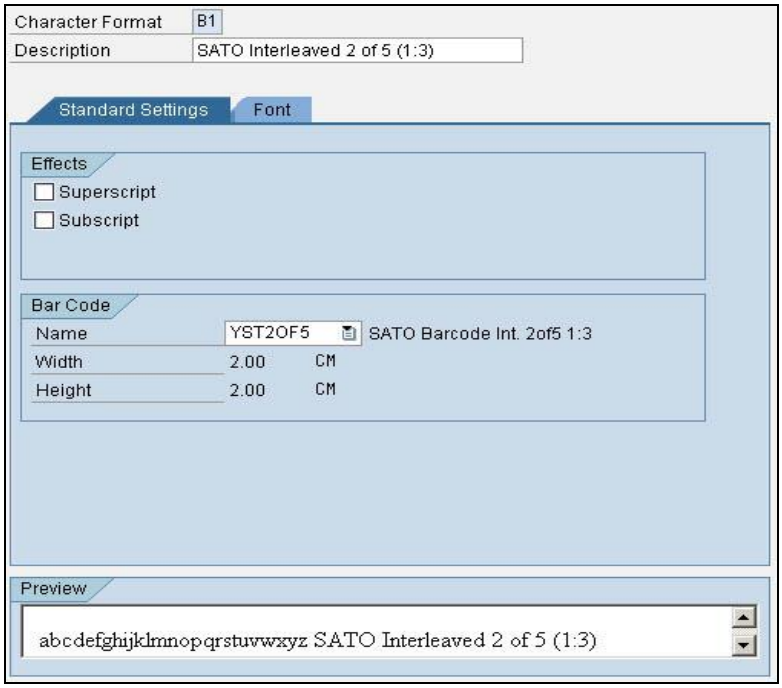


Figure 32 Defining Barcode printing item in SmartStyles

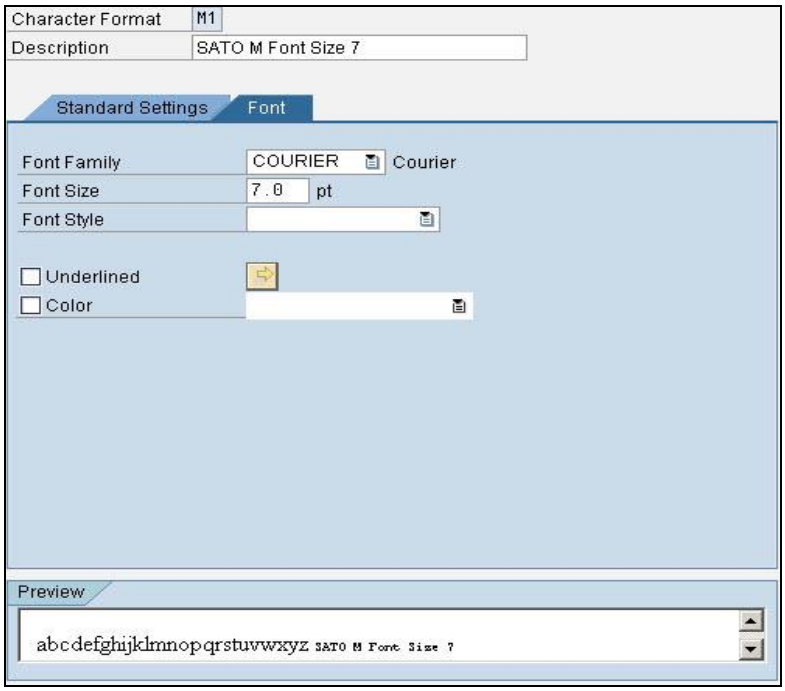


Figure 33 Defining Font Printing item in SmartStyles

After defining the necessary Barcode and Fonts as printing items, check and activate the SmartStyles.

Figure 34 Check and Activate the SmartStyles

6.4 Smart Forms

Enter transaction code '***/nsmartforms'*** to run the Smart Forms application.

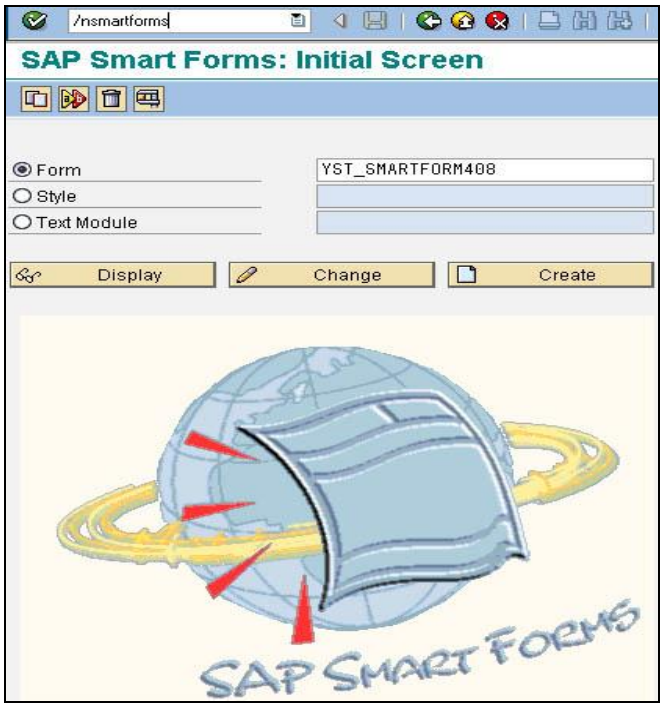


Figure 35 Smart Forms application

Create or edit a Smart Forms which the name is prefixed with 'YST'.

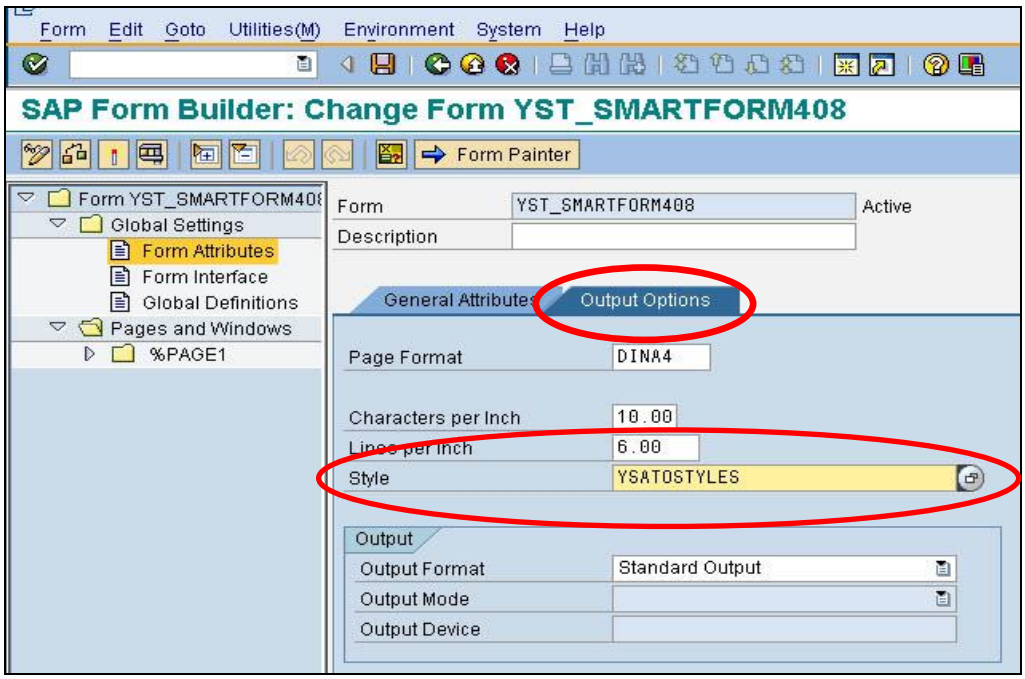


Figure 36 Applying the SmartStyles

Click on the 'Global settings'->'Form Attributes', in the 'Output Options', apply the SmartStyles defined previously.

6.4.1 Adding Text

Right click on the ‘Page1’, choose ‘Create’->’Window’.

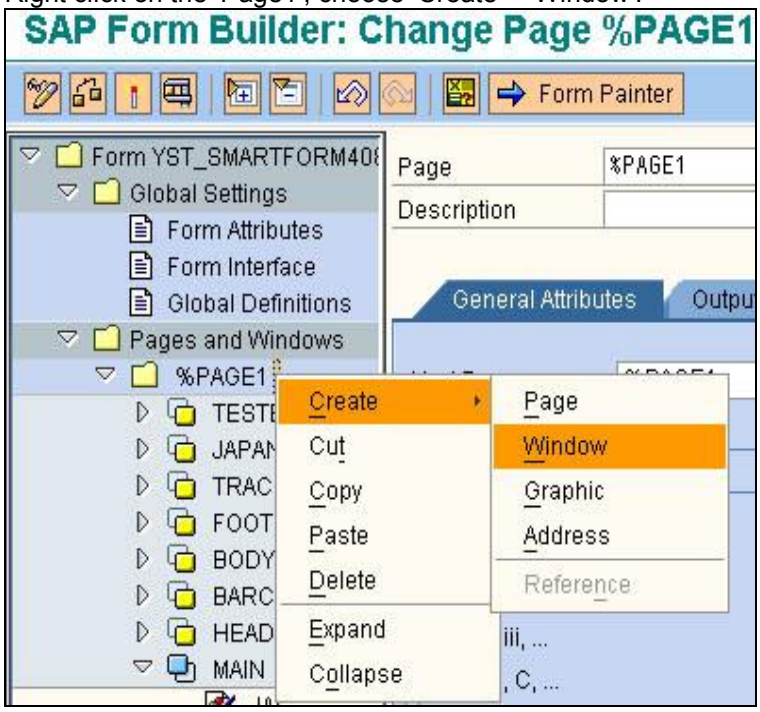


Figure 37 Creating Window

Give the Window component a meaningful name. Then right click on it and create a ‘Text’ component.

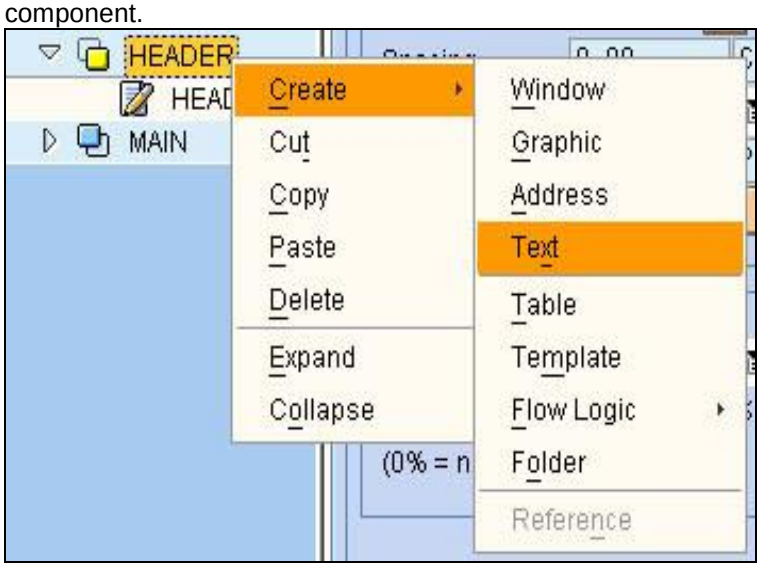


Figure 38 Creating Text Component

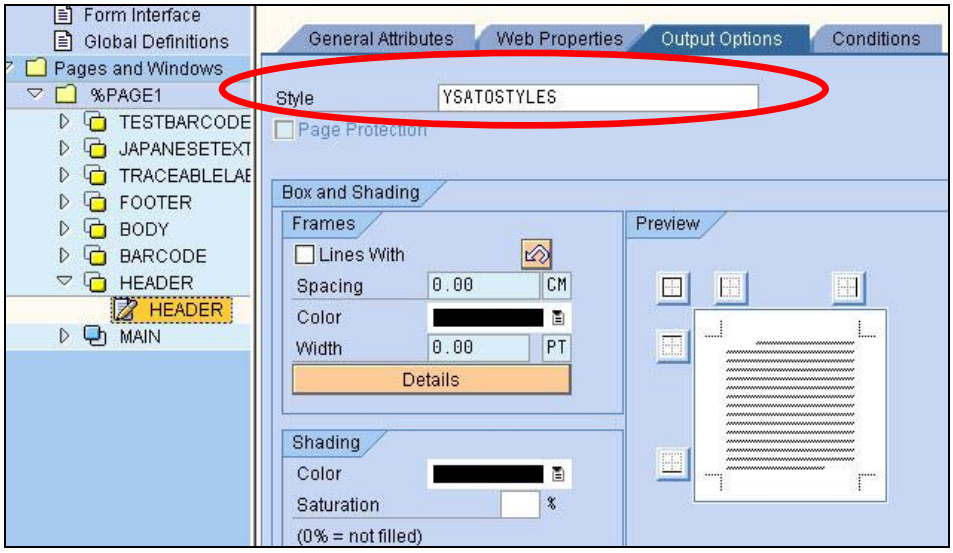


Figure 39 Defining Text Component

Under the 'Output Options' tab, select the SmartStyles which previously defined. So that the text printing item can be available to use.

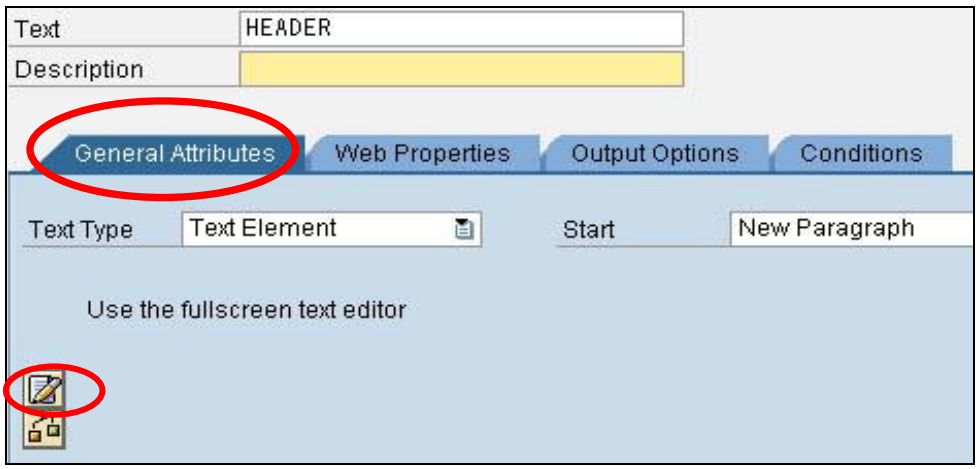


Figure 40 Adding Text

Click on the 'General Attributes' tab and click on the 'Editor' button to insert the text. Note: This procedure could be varied depending on the editor mode.

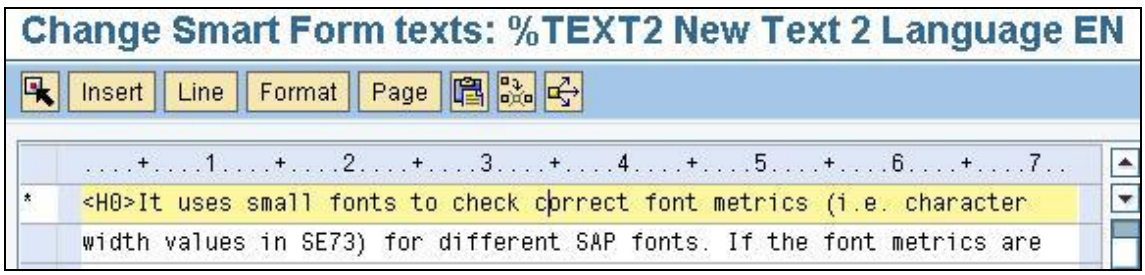

Change Smart Form texts: %TEXT2 New Text 2 Language EN
Insert
Line
Format
Page
....+....1....+....2....+....3....+....4....+....5....+....6....+....7..
*
<H0>It uses small fonts to check correct font metrics (i.e. character
width values in SE73) for different SAP fonts. If the font metrics are

Figure 41 Entering the text with format

The message is embedded in format tags. In the above example, the message is included in **<H0>** and **</>** format tags which specify the SATO CG Triumvirate Font (ESC+RD) . Format **H0** is a text printing item defined in the SmartStyles.

6.4.2 Adding Barcode

Define a 'Window' component under 'Page1' and give it a meaningful name. From this new window create a 'Text' component.

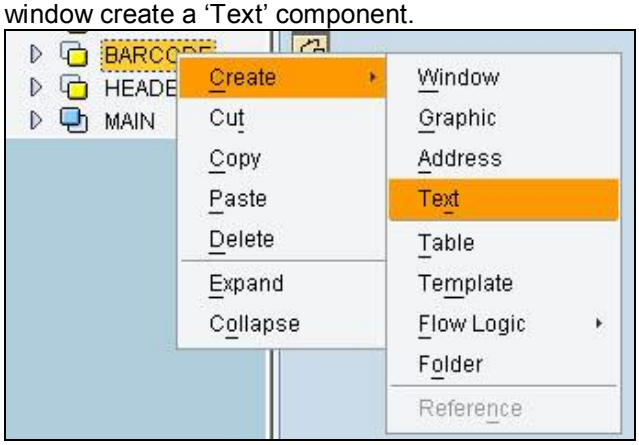


Figure 42 Creating Barcode component

Apply the SmartStyles in the 'Output Options'. Then in the Editor under 'General Attributes', type the Barcode value, and apply the Barcode printing format.

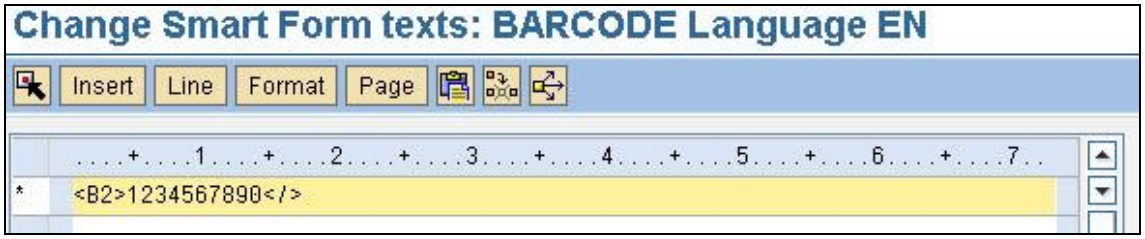


Figure 43 Entering Barcode value

The message is embedded in format tags. In the above example, the message is included in **<B2>** and **</>** format tags which specify the SATO Code 128A Barcode. Format **B2** is a Barcode printing item defined in the SmartStyles

6.4.3 Adding Images

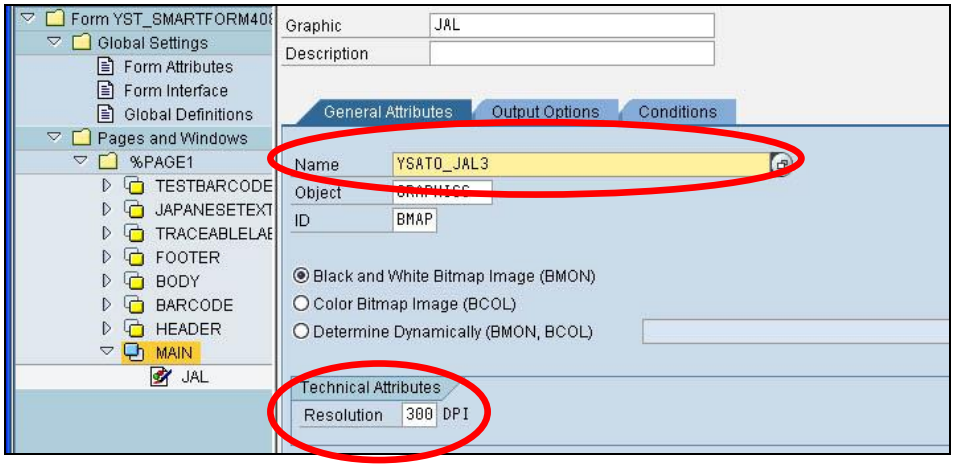


Figure 44 Creating Image component

All images must be imported to the SAP system through ***SE78*** command before attaching them to the smart form. Select the required image from the Name drop-down list under the General Attributes. Then key in the Resolution information for the image. For example, if the image is to be printed in 300 resolution printer, then select 300 from the Resolution field.

Currently, the images supported by SATO-SAP Printer Driver have the following constraints:

- Only 'Black and White Bitmap Images' are supported and they should be limited to 1bpp (bit per pixel) color deepness
- The images cannot be '*compressed'* when uploaded using Transaction code ***SE78***.

6.4.4 Positioning Printing Components

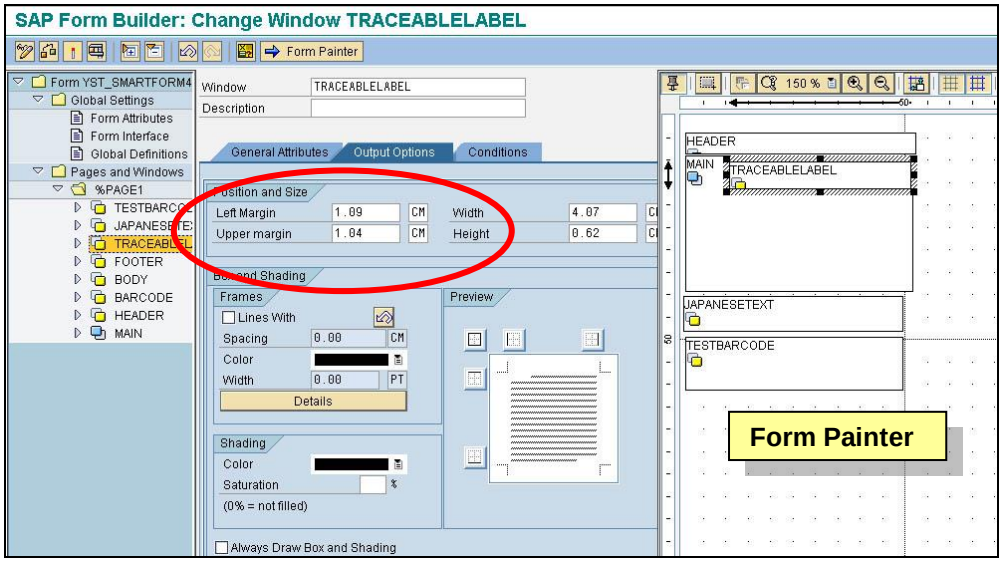


Figure 45 Positioning printing items

The positions of the printing items can be adjusted by drag & drop the components in the 'Form Painter'. Alternatively, it can be done by manipulating the values in the Left and Upper margin fields under the 'Output Options' tab of the window component.

6.4.5 Printing the Smart Forms

After the Smart Forms has been made, it has to be checked and activated before it can be printed.

Figure 46 Check and Activate the Smart Forms

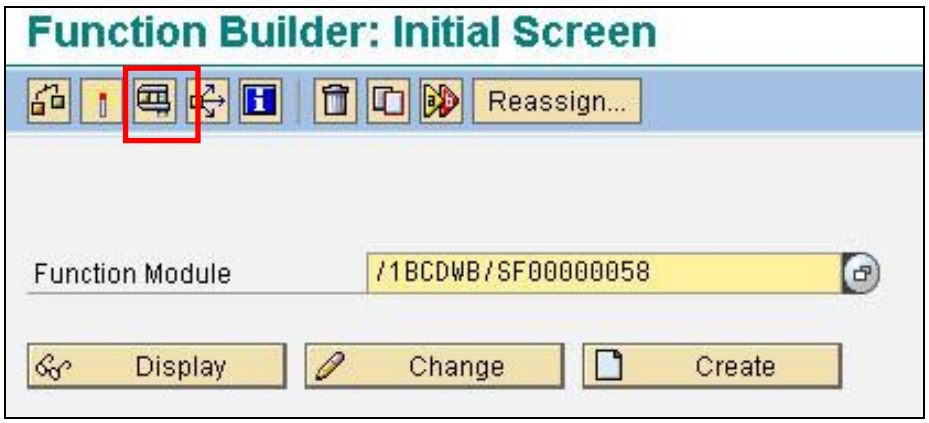


Figure 47 Printing Smart Forms

Click the 'Print' button to continue.

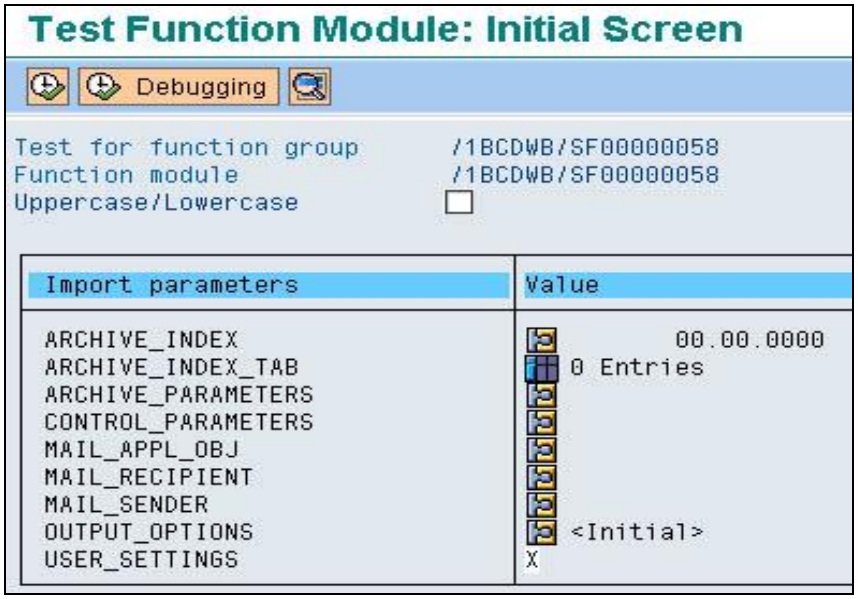


Figure 48 Printing Screen

Click the ‘Execute’ button to continue.

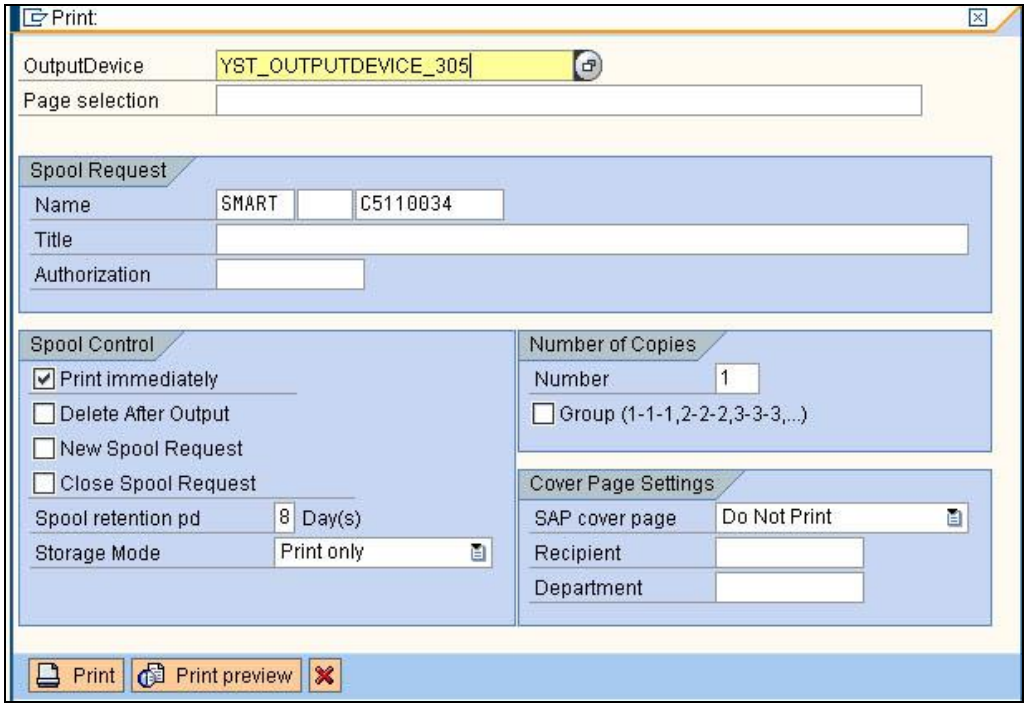


Figure 49 Printing Screen - Select the output device

Select the required Output Device and check on the ‘Print Immediately’ checkbox. Then click the ‘Print’ button to print.

6.5 System Commands

User can specify the System Commands of SBPL in the Smart Forms label by using the Command nodes.

Right click on the Window node->Create->Flow Logic->Command to display Command node feature.

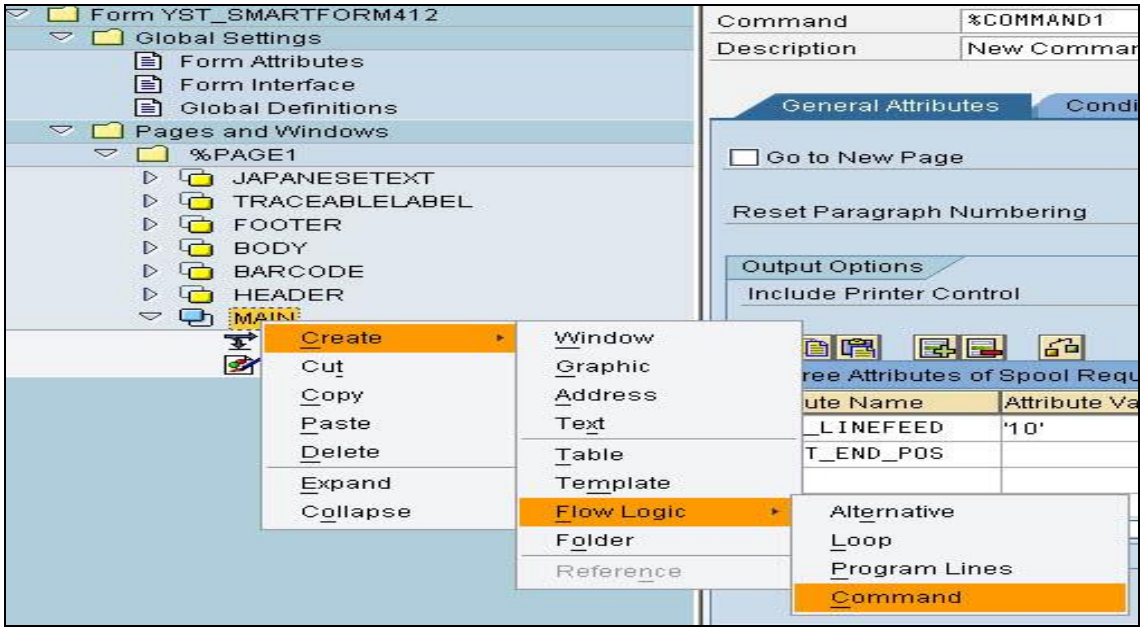


Figure 50 Defining System Command using Command node

Under the 'Output Options', user is to define the System Command in the Name-Value pairs format. **The value must be enclosed within the single quote character (') or empty, depending on the command.**

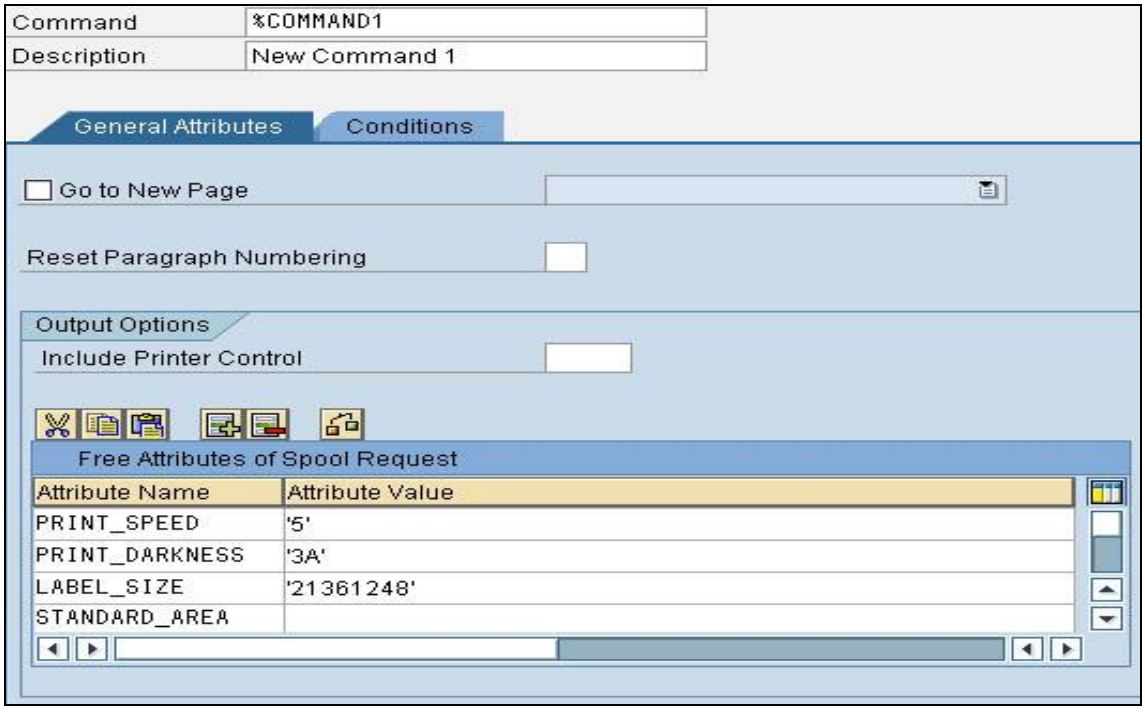


Figure 51 Name-Value pairs information

The following are the available system commands:

Function	Command Name	Command Value	SBPL Command	Remarks
Print Speed	**PRINT_SPEED**	1~11	ESC+CS	
Print Darkness	**PRINT_DARKNESS**	ab, a: 1~ 5 b: A~F	ESC+#E	
Label Size	**LABEL_SIZE**	Refer to the command specification	ESC+A1	The printer driver will generate a default ESC+A1 command, based on the label size of designed Smart Forms, if this System command is not specified.
Start Print Correction	**START_POINT**	Refer to the command specification	ESC+A3	The printer driver will generate a default ESC+A3 command, based on the position of the designed Smart Forms, if this System command is not specified.
Enlargement of Print Area	**ENLARGEMENT_AREA**	No value is needed	ESC+AX	
Standard Print Area	**STANDAR_AREA**	No value is needed	ESC+AR	
Print End Position	**PRINT_END_POS**	No value is needed	ESC+EP	
Multiple Cutting	**MULTIPLE_CUT**	0~9999	ESC+~(Null)	This command is valid only when the printer is equipped with cutter
No. of Labels per Cut Segment	**CUT_SEGMENT**	0~9999	ESC+~A	This command is valid only when the printer is equipped with cutter
Cutting Operation	**CUT_OPERATION**	No value is needed	ESC+~B	This command is valid only when the printer is equipped with cutter
Auto Linefeed	**AUTO_LINEFEED**	0~999	ESC+E	

90 degree Text Rotation	**ROTATE_90_x**	Name of Window to be rotated	ESC+%1	x is any number to make sure the command name is not repeated in the SmartForms
180 degree Text Rotation	**ROTATE_180_x**	Name of Window to be rotated	ESC+%2	x is any number to make sure the command name is not repeated in the SmartForms
270 degree Text Rotation	**ROTATE_270_x**	Name of Window to be rotated	ESC+%3	x is any number to make sure the command name is not repeated in the SmartForms
Page Number	**PRINT_QUANTITY**	Number of pages to print	ESC+Q	It is print command is not specified, the page is printed once. Example of the value: **'%PAGE2:4'** This means the page with name "%PAGE2" will be printed 4 times. Subsequent page number can be added with a comma separator. For example, **'%PAGE2:4, %PAGE3:3'** This means page '%PAGE2' is printed 4 times and page '%PAGE3' is printed 3 times
Print Darkness (#F command)	**PRINT_DARKNESS_F**	ab, a: 1~ 10 b: A~F	ESC+#F	This commands for supported models SG400R-ex, SG600R and SG112R.
Print Motion Mode	**PRINTMOTION_MODE**	0-8	ESC+PM	To specify motion mode temporarily.
Print Off-set	**LABELSTOP_OFFSET**	abcc, a: 0~3 b: +/- c:00~99(dot)	ESC+PO	To specify adjustment of label stop position during every motion temporarily.

Table 8 System Commands

It is important to refer to the command specification of the printer models to understand the correct range of value can be used for the Command values. Note that the Command Names are case-sensitive.
System command should be used carefully. Invalid input may result in unexpected outcome of

the printout.

The table below shows the supported System Commands on models

Model / Command	PT4xxe/ MB4xxi	CT4xxi/ L'esprit T/R4xxv	SR4xx	LT4xx/CL4xx/MR4xxe/ GT4xxe/GTxxe/M84Pro/ M10e	S-84
PRINT_SPEED	O	O	O	O	O
PRINT_DARKNESS	O	O	O	O	O
LABEL_SIZE	O	O	O	O	O
START_POINT	O	O	O	O	O
ENLARGEMENT_AREA				O	O
STANDARD_AREA				O	O
PRINT_END_POS		O	O	O	O
MULTIPLE_CUT		O*	O*	O*	O*
CUT_SEGMENT		O*	O*	O*	O*
CUT_OPERATION		O*	O*	O*	O*
AUTO_LINEFEED	O	O	O	O	O
ROTATE_xx_X	O	O	O	O	O
PRINT_QUANTITY	O	O	O	O	O

Figure 52 System Commands on Models

*: Only possible when the Cutter Unit is installed.

6.5.1 Text and Image Rotation

To rotate a text or an image on SmartForms, user is to create a command in the window to be rotated. The name of parameter (e.g., ROTATE_180_x) should not be repeated. Image below is an example of how the rotated text can be setup:

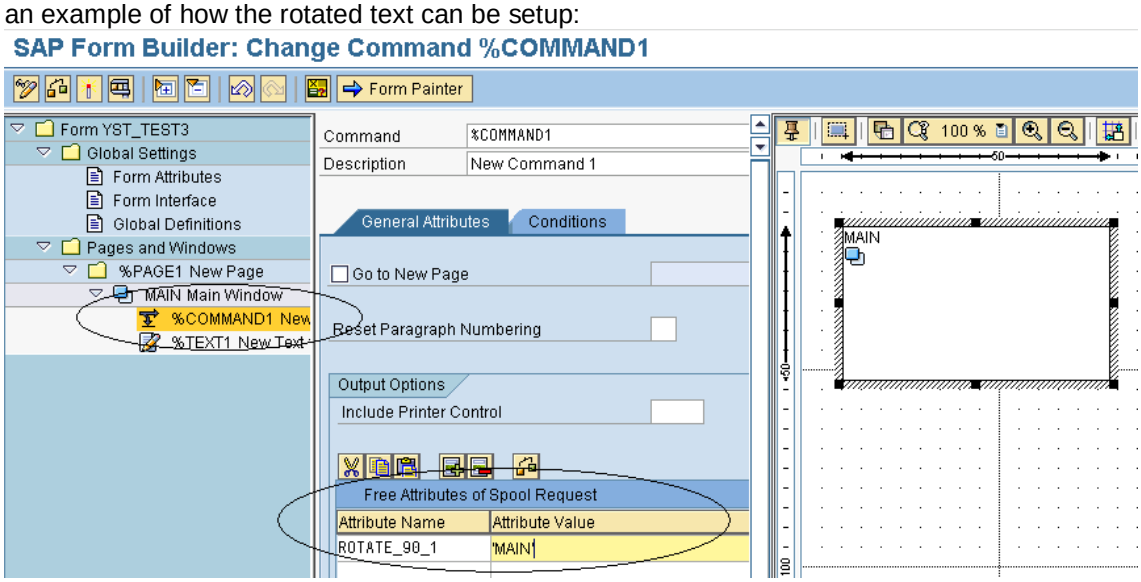


Figure 53 Text Rotation

Rotation Result:

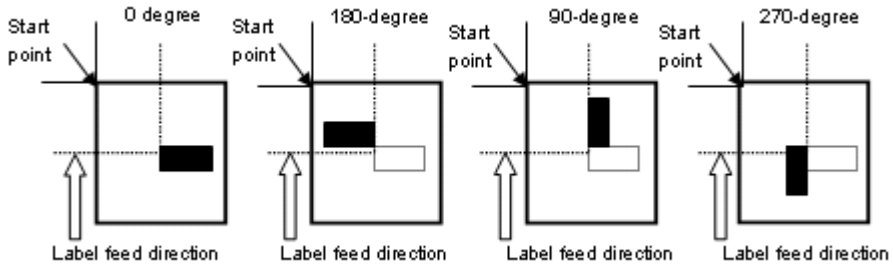


Figure 54 Rotation result

Please refer to the command specification for the behavior of the rotation.

There are a few restrictions on the Rotation functions:

- SmartForm will not display the rotated text on the print preview. User is to adjust the position of the window by checking the actual printout.
- The rotated text should not have more than 1 line.
- Each rotated window should have only 1 line of text or only 1 image.

6.5.2 Setup Label Size Using Command

This is the alternative method to setup custom label size using SATO Printer Language, A1 command. This will overwrite the standard Label size value by Page Format setting of Smart Forms. User should consult SBPL manual for A1 command before using it in Smart Forms. As described in Table 8 System Commands, add **LABEL_SIZE** command with Parameter of label height follow by label width with correct number of digits as described in SBPL manual for specific printer.

Note: GL printer could not accept longer length than height of label for label width. Thus Landscape Orientation setup on printer (using LCD Menus and Buttons) should utilize (that mean shorter length of label is width and the longer length is height.)

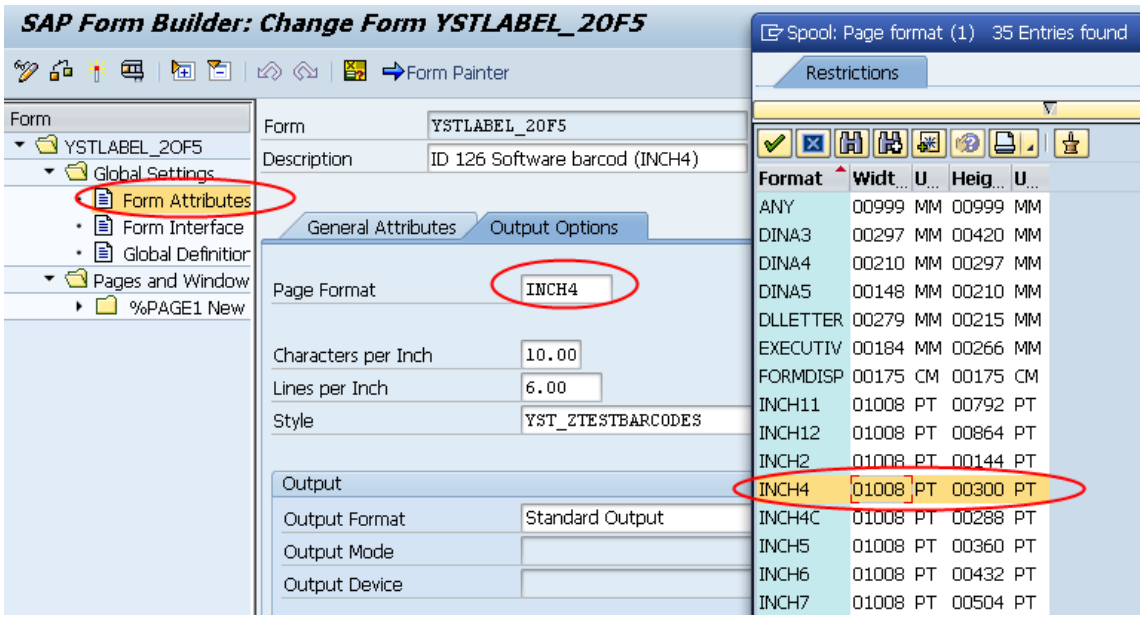


Figure 55 Standard Label Size Setup with appropriate Page Format setting.

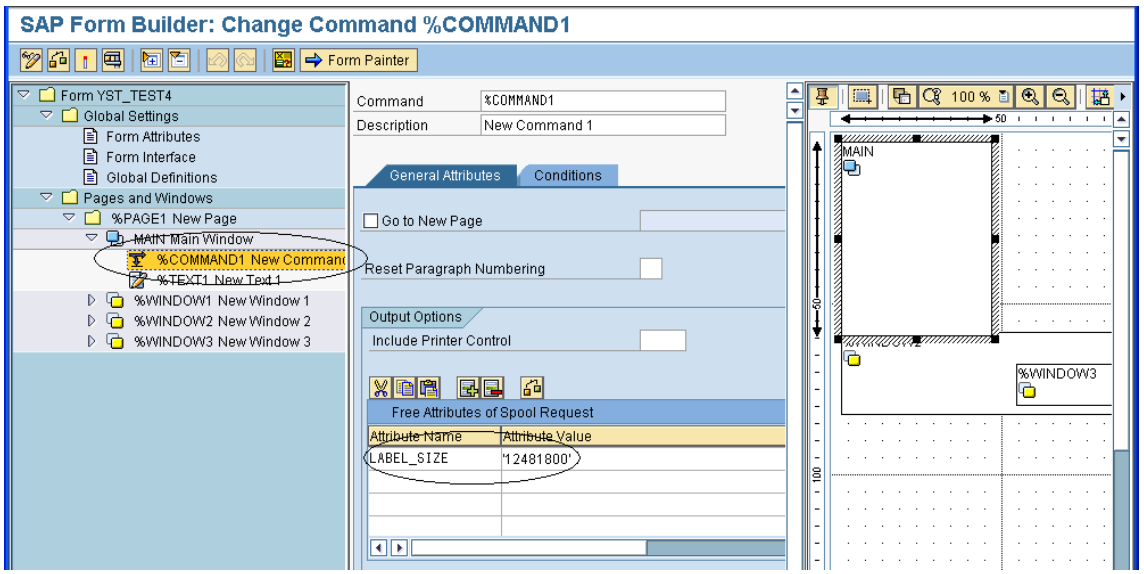


Figure 56 Custom Label Size Setup with Command

Limitations 7

Please note the following are not supported by the SATO PDL Driver:

- Compressed graphics and color bitmap
- Underlined, superscript and subscript text
- There could be some slight variations of font size in SmartForms and the actual font size printed from SATO printer. This is due to the size conversion and rounding up issues.
- Courier Font (which will be mapped to SATO Fixed Width Scalable font) does not support 8 points or lower font size printing in 203dpi printer. It will be printed in a slightly larger font size instead.
- Some European characters from ISO8859-1 and Codepage 850 device types are not available from printer. Please refer to the command specifications of printer for details.

For other functionalities of SATO printers which are not supported by the SATO PDL driver, please approach the technical team of SATO for customization requests at global.sysdev-gbs@sato-global.com

Appendix 8

8.1 Print Controls List for Barcode

For the control list of New Barcode Technology, please refer to Table 4 Barcode Print Controls.

The following is the control list for the old barcodes:

Barcode (Ratio 1:3)

NW-7 (CODABAR)

SAP Print Control	Narrow Bar Width	Mapped to SBPL Command
SB101	1	ESC+B001
SB102	2	ESC+B002
SB103	3	ESC+B003
SB104	4	ESC+B004
SB105	5	ESC+B005
SB106	6	ESC+B006
SB107	7	ESC+B007
SB108	8	ESC+B008
SB109	9	ESC+B009
SB110	10	ESC+B010
SB111	11	ESC+B011
SB112	12	ESC+B012

Interleaved 2 of 5

SB121	1	ESC+B201
SB122	2	ESC+B202
SB123	3	ESC+B203
SB124	4	ESC+B204
SB125	5	ESC+B205
SB126	6	ESC+B206
SB127	7	ESC+B207
SB128	8	ESC+B208
SB129	9	ESC+B209
SB130	10	ESC+B210
SB131	11	ESC+B211
SB132	12	ESC+B212

JAN/EAN13

SB141	1	ESC+B301
SB142	2	ESC+B302
SB143	3	ESC+B303
SB144	4	ESC+B304
SB145	5	ESC+B305
SB146	6	ECS+B306
SB147	7	ESC+B307
SB148	8	ESC+B308

SB149	9	ESC+B309
SB150	10	ESC+B310
SB151	11	ESC+B311
SB152	12	ESC+B312

JAN/EAN8

SB161	1	ESC+B401
SB162	2	ESC+B402
SB163	3	ESC+B403
SB164	4	ESC+B404
SB165	5	ESC+B405
SB166	6	ESC+B406
SB167	7	ESC+B407
SB168	8	ESC+B408
SB169	9	ESC+B409
SB170	10	ESC+B410
SB171	11	ESC+B411
SB172	12	ESC+B412

UPC-A

SB181	1	ESC+BH01
SB182	2	ESC+BH02
SB183	3	ESC+BH03
SB184	4	ESC+BH04
SB185	5	ESC+BH05
SB186	6	ESC+BH06
SB187	7	ESC+BH07
SB188	8	ESC+BH08
SB189	9	ESC+BH09
SB190	10	ESC+BH10
SB191	11	ESC+BH11
SB192	12	ESC+BH12

PostNet

SB007		ESC+BP

Barcode (Ratio 1:2)

NW-7 (CODABAR)

SAP Print Control	Narrow Bar Width	Mapped to SBPL Command
SB201	1	ESC+D001
SB202	2	ESC+D002
SB203	3	ESC+D003
SB204	4	ESC+D004
SB205	5	ESC+D005
SB206	6	ESC+D006
SB207	7	ESC+D007
SB208	8	ESC+D008
SB209	9	ESC+D009
SB210	10	ESC+D010
SB211	11	ESC+D011

SB212	12	ESC+D012

Interleaved 2 of 5

SB221	1	ESC+D201
SB222	2	ESC+D202
SB223	3	ESC+D203
SB224	4	ESC+D204
SB225	5	ESC+D205
SB226	6	ESC+D206
SB227	7	ESC+D207
SB228	8	ESC+D208
SB229	9	ESC+D209
SB230	10	ESC+D210
SB231	11	ESC+D211
SB232	12	ESC+D212

JAN/EAN13

SB241	1	ESC+D301
SB242	2	ESC+D302
SB243	3	ESC+D303
SB244	4	ESC+D304
SB245	5	ESC+D305
SB246	6	ESC+D306
SB247	7	ESC+D307
SB248	8	ESC+D308
SB249	9	ESC+D309
SB250	10	ESC+D310
SB251	11	ESC+D311
SB252	12	ESC+D312

JAN/EAN8

SB261	1	ESC+D401
SB262	2	ESC+D402
SB263	3	ESC+D403
SB264	4	ESC+D404
SB265	5	ESC+D405
SB266	6	ESC+D406
SB267	7	ESC+D407
SB268	8	ESC+D408
SB269	9	ESC+D409
SB270	10	ESC+D410
SB271	11	ESC+D411
SB272	12	ESC+D412

UPC-A

SB281	1	ESC+DH01
SB282	2	ESC+DH02
SB283	3	ESC+DH03
SB284	4	ESC+DH04
SB285	5	ESC+DH05
SB286	6	ESC+DH06
SB287	7	ESC+DH07

SB288	8	ESC+DH08
SB289	9	ESC+DH09
SB290	10	ESC+DH10
SB291	11	ESC+DH11
SB292	12	ESC+DH12

Barcode (Ratio 2:5)

NW-7 (CODABAR)

SAP Print Control	Narrow Bar Width	Mapped to SBPL Command
SB301	1	ESC+BD001
SB302	2	ESC+BD002
SB303	3	ESC+BD003
SB304	4	ESC+BD004
SB305	5	ESC+BD005
SB306	6	ESC+BD006
SB307	7	ESC+BD007
SB308	8	ESC+BD008
SB309	9	ESC+BD009
SB310	10	ESC+BD010
SB311	11	ESC+BD011
SB312	12	ESC+BD012

Interleaved 2 of 5

SB321	1	ESC+BD201
SB322	2	ESC+BD202
SB323	3	ESC+BD203
SB324	4	ESC+BD204
SB325	5	ESC+BD205
SB326	6	ESC+BD206
SB327	7	ESC+BD207
SB328	8	ESC+BD208
SB329	9	ESC+BD209
SB330	10	ESC+BD210
SB331	11	ESC+BD211
SB332	12	ESC+BD212

JAN/EAN13

SB341	1	ESC+BD301
SB342	2	ESC+BD302
SB343	3	ESC+BD303
SB344	4	ESC+BD304
SB345	5	ESC+BD305
SB346	6	ESC+BD306
SB347	7	ESC+BD307
SB348	8	ESC+BD308
SB349	9	ESC+BD309
SB350	10	ESC+BD310
SB351	11	ESC+BD311
SB352	12	ESC+BD312

JAN/EAN8

SB361	1	ESC+BD401
SB362	2	ESC+BD402
SB363	3	ESC+BD403
SB364	4	ESC+BD404
SB365	5	ESC+BD405
SB366	6	ESC+BD406
SB367	7	ESC+BD407
SB368	8	ESC+BD408
SB369	9	ESC+BD409
SB370	10	ESC+BD410
SB371	11	ESC+BD411
SB372	12	ESC+BD412

UPC-A

SB381	1	ESC+BDH01
SB382	2	ESC+BDH02
SB383	3	ESC+BDH03
SB384	4	ESC+BDH04
SB385	5	ESC+BDH05
SB386	6	ESC+BDH06
SB387	7	ESC+BDH07
SB388	8	ESC+BDH08
SB389	9	ESC+BDH09
SB390	10	ESC+BDH10
SB391	11	ESC+DBH11
SB392	12	ESC+BDH12

Code 39 (Ratio 1:3)

SB501	1	ESC+B101
SB502	2	ESC+B102
SB503	3	ESC+B103
SB504	4	ESC+B104
SB505	5	ESC+B105
SB506	6	ESC+B106
SB507	7	ESC+B107
SB508	8	ESC+B108
SB509	9	ESC+B109
SB510	10	ESC+B110
SB511	11	ESC+B111
SB512	12	ESC+B112

Code 39 (Ratio 1:2)

SB521	1	ESC+D101
SB522	2	ESC+D102
SB523	3	ESC+D103
SB524	4	ESC+D104
SB525	5	ESC+D105
SB526	6	ESC+D106
SB527	7	ESC+D107
SB528	8	ESC+D108
SB529	9	ESC+D109

SB530	10	ESC+D110
SB531	11	ESC+D111
SB532	12	ESC+D112

Code 39 (Ratio 2:5)		
SB541	1	ESC+BD101
SB542	2	ESC+BD102
SB543	3	ESC+BD103
SB544	4	ESC+BD104
SB545	5	ESC+BD105
SB546	6	ESC+BD106
SB547	7	ESC+BD107
SB548	8	ESC+BD108
SB549	9	ESC+BD109
SB550	10	ESC+BD110
SB551	11	ESC+BD111
SB552	12	ESC+BD112

Code 93		
SB561	1	ESC+BC01
SB562	2	ESC+BC02
SB563	3	ESC+BC03
SB564	4	ESC+BC04
SB565	5	ESC+BC05
SB566	6	ESC+BC06
SB567	7	ESC+BC07
SB568	8	ESC+BC08
SB569	9	ESC+BC09
SB570	10	ESC+BC10
SB571	11	ESC+BC11
SB572	12	ESC+BC12

8.2 Font Print Controls

		203dpi	305dpi	609dpi	
ESC+M	**ESC+L**	Point			Print Control
(13x20)	1	7	5	2	SF301
(Courcyr)	2	14	9	5	SF302
	3	21	14	7	SF303
	4	28	19	10	SF304
	5	36	24	12	SF305
	6	43	28	14	SF306
	7	50	33	17	SF307
	8	57	38	19	SF308
	9	64	43	21	SF309
	10	71	47	24	SF310
	11	78	52	26	SF311
	12	85	57	28	SF312
ESC+S	1	5	4	2	SF201
(8x15)	2	11	7	4	SF202
(Lnprint)	3	16	11	5	SF203
	4	21	14	7	SF204
	5	27	18	9	SF205
	6	32	21	11	SF206
	7	37	25	12	SF207
	8	43	28	14	SF208
	9	48	32	16	SF209
	10	53	35	18	SF210
	11	59	39	20	SF211
	12	64	43	21	SF212
ESC+XM	1	8.5	5.5		SF301
(24x24)	2	17.0	11.5		SF302
(Letgoth)	3	25.5	17.5		SF303
LM4	4	34.0	22.5		SF304
Device	5	42.5	28.5		SF305
Type	6	51.0	34.0		SF306
	7	59.5	39.5		SF307
	8	68.0	45.5		SF308
	9	76.5	51.0		SF309
	10	85.0	56.5		SF310
	11	93.5	62.5		SF311
	12		68		SF312
ESC+XS	1	6.0	4.0		SF201
(17x17)	2	12.0	8.0		SF202
(Lnprint)	3	18.0	12.0		SF203
LM4	4	24.0	16.0		SF204
Device	5	30.0	20.0		SF205
Type	6	36.0	24.0		SF206
	7	42.0	28.0		SF207

	8	48.0	32.0		SF208
	9	54.5	36.0		SF209
	10	60.5	40.0		SF210
	11	66.5	44.0		SF211
	12	72.5	48.0		SF212
ESC+XU	1	3.0	2.0		SF101
(5x9)	2	6.5	4.0		SF102
(Cour_i7)	3	9.5	6.5		SF103
LM4	4	13.0	8.5		SF104
Device	5	16.0	10.5		SF105
Type	6	19.0	12.5		SF106
	7	22.5	15.0		SF107
	8	25.5	17.0		SF108
	9	28.5	19.0		SF109
	10	32.0	21.0		SF110
	11	35.0	23.5		SF111
	12	38.5	25.5		SF112

Note: The fixed size resident fonts are only supported in English-only and LM4 Device Types.

Other font information can be found at **Error! Reference source not found. Error! Reference source not found.**.

Extensive contact information of worldwide SATO operations can be found on the Internet at **www.satoworldwide.com**